A6: A Catalogue of Specimens of the Dodo (*Raphus cucullatus*) and the Solitaire (*Pezophaps solitaria*) in Collections Worldwide

See also Parish (2013, pp.226-264). For more information on the British Museum foot see Parish (2013, pp.199-210); for the Prague beak see Parish (2013, pp.178-190), for the Copenhagen skull see Parish (2013, pp.190-195), and for the Tradescant specimen see Parish (2013, pp.71, 210-226, 272, 275, 277). Further information on some of the persons mentioned below can be found in the Biographical Details section. The following collections were personally catalogued by the author: AMNH Department of Vertebrate Paleontology (January 2002), Booth Museum (29th August 2000), NHMUK (15th September 1998, 19th November 1998, 28th January 1999, 15th June 1999, 19th September 2001), OUM (6th August 1996, 31st August 1999, January 2001), PIN (22nd November 2002), UMZC (23rd February 1996, 4th April 1996, 29th August 1997, 27th March 2002, 15th-17th December 2008), USNM (14th May 2001), YPM (8th-9th May 2001), Ralfe Whistler's collection (November 1996).

Several dodo skeletons were constructed by Maison Deyrolle in Paris, a firm of taxidermists. Known Deyrolle skeletons include the Cardiff, Delft, La Rochelle, Brussels, Harvard and the Darwin Museum (Moscow) skeletons. According to De Wit (1940), the Delft skeleton was composed from bones excavated by a Frenchman in *c*.1900. This would presumably be Etienne Thirioux and indeed the cranium matches that of one of his skeletons (see figure below). The Deyrolle skeletons have the same cast elements in common: the cranium, jugal arches, quadrates, upper beak, and also the stand. The cranium, at least, would appear to have been cast from Thirioux's specimen. Comparing these elements with other skeletons others, several additional possible Deyrolle skeletons may be identified: Lyon, Frankfurt, Magdeburg, Salzburg and Rowland Ward's skeleton. The Cardiff, Delft, Frankfurt, Magdeburg, Salzburg, Harvard and Ward's skeletons also have a distinctive fourteenth vertebra (reconstructed or cast) in common.

The vast majority of dodo specimens (>99%) originate from Mare aux Songes. Regarding numbers of dodo bones found at Mare aux Songes, Edward W. Robinson wrote to Edward Wood in a letter dated 21st July 1867 (see The Manchester Museum): "Of the numbers found I cannot say. but that a very large quantity came to light may be inferred from the fact. that at Stevens's in March 66. upwards of 230 specimens were sold. in 9. lots varying from £15 to £3.10 each lot. that I had pass through my hands. nearly 100. and the British Mus~~u~~eum must possess at least 3 times that number. so I know of ~~at~~ about 600. and how many more have been distributed in the island and elsewhere there is no knowing." The total number of dodo bones from the site number thousands, and many more are probably still unexcavated (Meijer 2012).

In 1847 Melville informed Strickland (D-227) that he had given a set of casts to Sundevall. Melville later wrote to Strickland (6th September 1849; D-263) that Jamieson wanted a cast of the foot of the dodo (Rookmaaker 2010).

Richard Owen, having described the first set of dodo bones to reach England, was considered an authority for identifying and confirming identity of bones. For example, some of the bones in the Hunterian Museum, Glasgow, were 'named' by Owen. Likewise, Charles Ottley Groom-Napier had a collection of dodo bones that were "carefully named" by Owen, and some bones advertised for sale in 1879 were "verified" by Owen.

Non-Mare aux Songes dodo material can be found in the following collections: OUM (11605), UMZC (415.H, 415.KK), NHM London (A.838, A.3224), Hunterian Museum Glasgow (Z1688), Copenhagen (AVES-105485), MNHN (MAD 5971, 5983 to 5989, 6530), Elbeuf, Lausanne (MGL 20106), Prague (P6V-004389), Durban (2366), Mauritius Institute (elements of Sauzier's skeleton, Thirioux's skeleton, the Kanaka specimen, Baie du Cap, Plaine des Roches and Treize Cantons material), Canterbury Museum (Christchurch, New Zealand), cranium discovered by Didier Dutheil in 1999, specimens from limestone caves in southwest and southeast Mauritius.

The following non-Mare aux Songes specimens are of unknown whereabouts: British Museum foot, the majority of Thirioux's collection, the vertebra from Mare Sèche, bones from "Cave Noyale", bone from

Riche Mare (doubtful) and the pedal phalanx from a marsh in the Flacq District (see Parish 2013, pp.199-210; 253, 363; 254, 364-365; 251-252, 365; 366; 366; 262-264, 365 for further details of these).

The above list may not be complete and there may be other material (such as elements in MCZ 340825), either in the museums listed above or in other collections, with a non-Mare aux Songes origin. For further details on Thirioux's finds see Synopsis of Dodo-Related Communications from the Thirioux – Newton Correspondence, UMZC.

There are numerous casts of the Tradescant head and BM foot in museum collections. Some of these may not be first generation casts. The earliest record of casting of these specimens is 1832 (Tradescant head: Anon. 1832a) and 1840 (BM foot: Bremen). De Blainville (1835) also mentions a plaster cast of the Tradescant head, which he acquired from Buckland and Duncan.

In addition to currently available specimens, this catalogue lists many that have been lost, either by destruction or by lack of documentary evidence linking them to known remains.

It is estimated that there are around 5000 *Pezophaps* specimens in collections worldwide (Anon. 2013). Many of these originated from the Transit of Venus expedition of 1874. Albert Günther, Keeper of Zoology at the British Museum, sent numerous specimens to the museums of Oxford, the Royal College of Surgeons of London, Edinburgh and Dublin (see individual entries below). The type letter written by Günther is given below (DF 202/9, Correspondence and papers relating to distribution of collections and preparation of reports 1875-1876, Royal Society Transit of Venus Expeditions, NHMUK General Library Archives):

Zoological Department
28. 2. 76

Dear Sir
I have received instructions
to distribute the duplicates
of the zoological collections
made by the naturalists accompanying
the Transit of Venus Expeditions
& handed over by the Royal
Society of London to the
Trustees of the British Museum,
among five institutions
one of which is the Museum
of Science & Art in Edinburgh.
The examination of the osseous

Professor Traquair

remains of the Solitaire from
Rodriguez Island having been
completed, I transmit to
you today a box containing
the parts selected for your
museum.
I enclose a list of the
bones sent, which please
sign on receipt of the speci-

mens & return to me
Yours very truly
AGünther

Duplicates of other parts
of the collection will
follow, as soon as they
are arranged & examined.

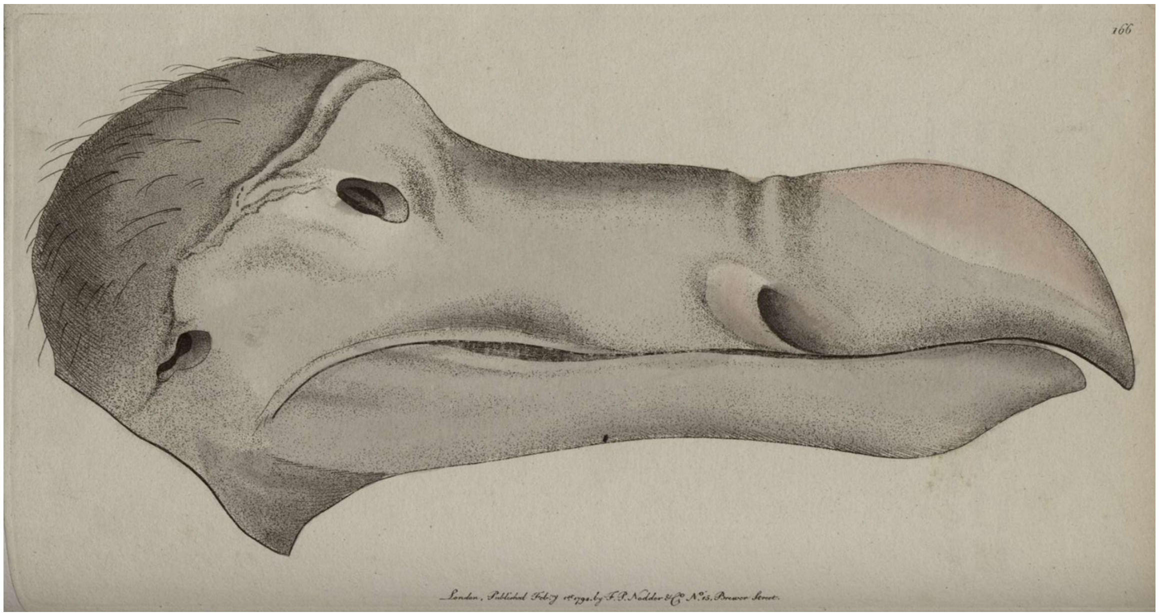
Above "of Science & Art in Edinburgh" is written in pencil: "Natural History in Dublin" and above "Professor Traquair" is written, also in pencil, "Alex. Carte Esq. [?]".

Oxford University Museum

Oxford University Museum, Parks Road, Oxford OX1 3PW

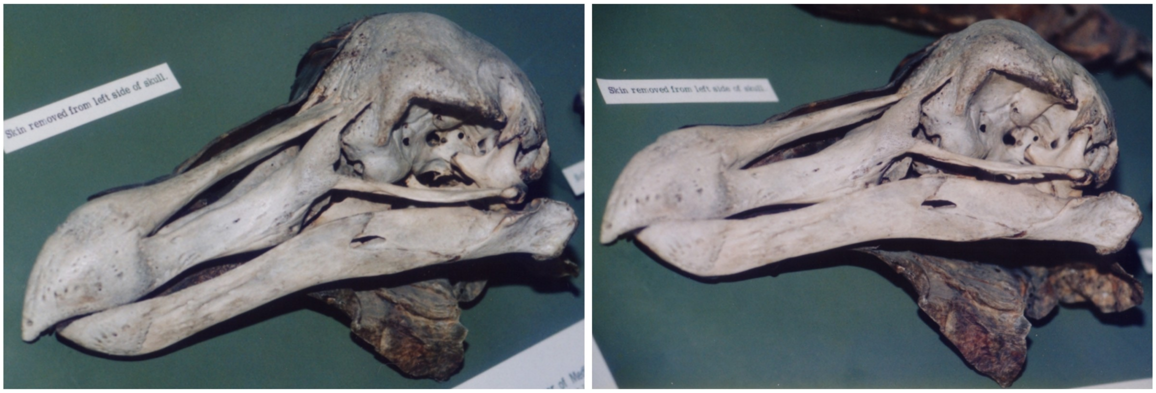
"One of the most valuable specimens in Natural History is the head of a Dodo, with a beak five inches long, and exactly corresponding in form to that usually given in the prints of this animal, which has often been supposed to be fabulous, and is probably now exterminated" (Wade 1817, p.315).

Anon. (1818), writing about the Ashmolean Museum, remarked: "A head of the bird called a Dodo, the species of which is extinct. Dr. Shaw, the celebrated Naturalist, discovered it, among other preserved parts of birds in the Museum; previous to which he considered the accounts of this extraordinary bird as fabulous" (p.67).

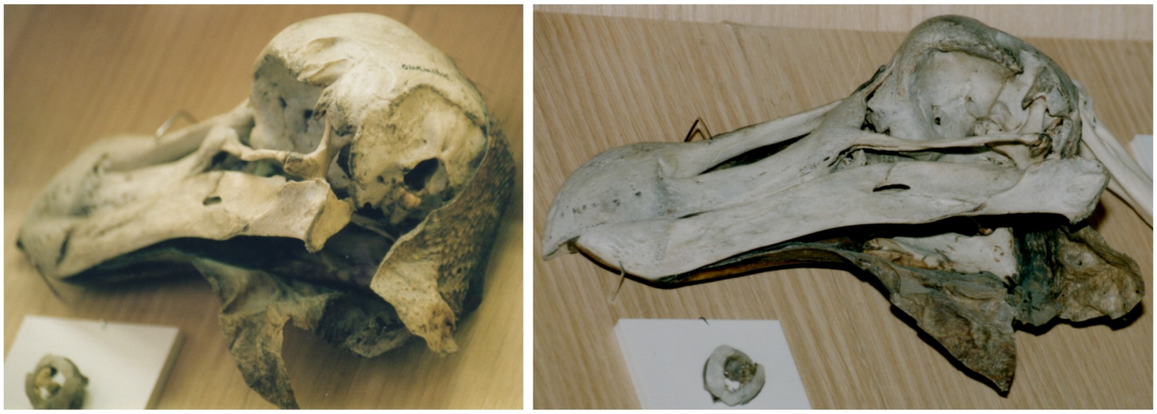

166
London, Published Feb.y 1st 1794, by F.P. Nodder & Co. No. 15, Brewer Street.

The Tradescant head (Shaw & Nodder 1794, pl.166).

"The head of the dodo, or dodar, is the sole specimen existing of a bird larger than a swan; presented probably by Mr. Thomas Herbert to Tradescant; and bought by him from the island of Mauritius, where it only is reported to have ever been seen, and where it certainly does not now exist" (Duncan 1826, pp.4-5).

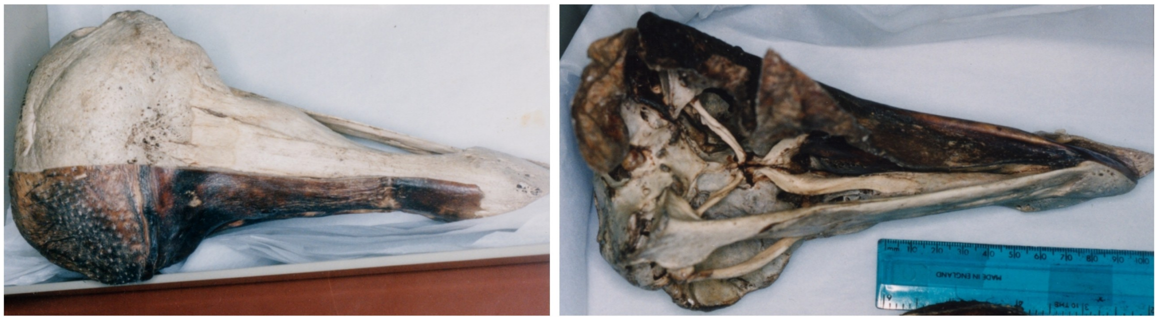

Skin removed from left side of skull.
Skin removed from left side of skull.

The Tradescant head (© E. C. Parish, 6th August 1996).



The Tradescant head (© E. C. Parish, 31st August 1999).

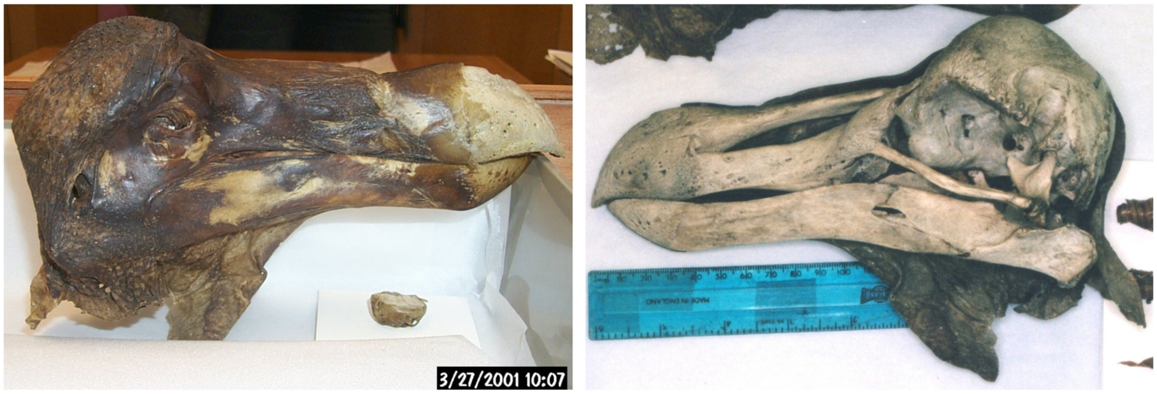
Ingram (1837) wrote: “Upon the removal, in the year 1832, of the geological collection to the Clarendon [...] the ground-floor apartments [...] were thrown into one large room [...] The whole forms a handsome saloon; and having been recently fitted up by the present keeper, it exhibits an arranged collection of shells, some of the larger quadrupeds, together with a valuable series of beads of animals and birds. Among the latter is the unique head of the now extinct bird called the dodo” (p.14). Carl Gustav Carus visited the Ashmolean on 27th June 1844 and examined the foot. On this occasion he was also presented with a plaster cast of the head (Carus 1845). Strickland, writing to Charles-Lucien Bonaparte, remarked that plaster casts had been made of “our own Dodo’s head and foot to be given to public museums” (letter dated Oxford, 2nd June 1847, MS 3398, MNHN, quoted in Stroud 2000, p.222).



The Tradescant head in dorsal and ventral views (© Jolyon C. Parish, January 2001).

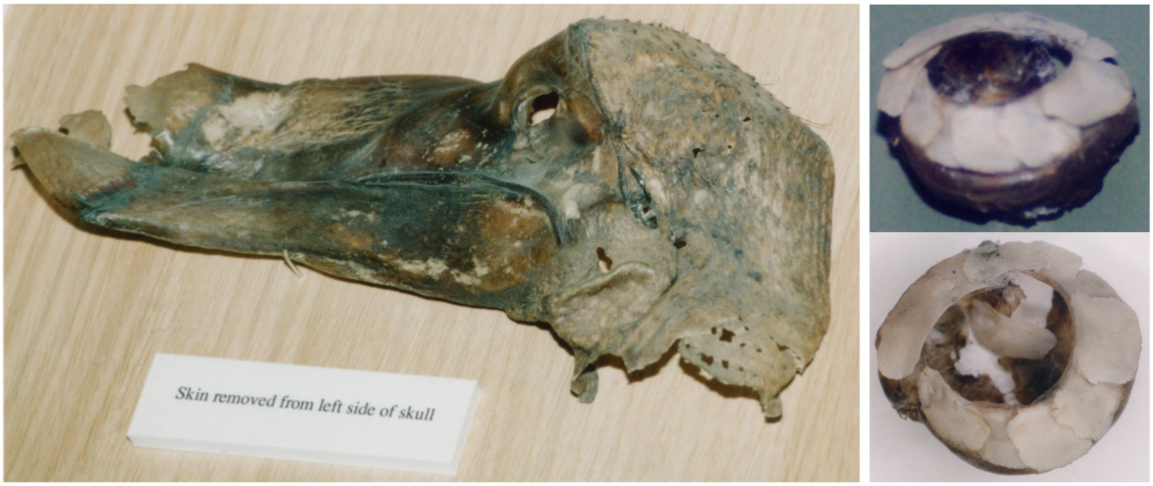
Philip Bury Duncan wrote to Strickland (10th May 1847; E-0476) that Strickland could borrow the Tradescant remains and that he hoped the genus of the dodo could be determined. He later wrote (7th June

1847; E-0477) that Melville could borrow the Tradescant head and foot for study. Duncan subsequently wrote to Strickland (10th February 1848; D-144) that he agreed to sending the Tradescant head to London to be illustrated by George Henry Ford, but that he hoped that the process would not take long, as there were often enquiries regarding the specimen. Ford wrote to Strickland in 1848 (D-128) that if it were not possible for the Tradescant head to be sent to London he would not be able to illustrate it. Duncan later added (19th June 1848; D-145) that he wanted to display the head at the Commemoration and that if the artist had not yet completed the illustration the head could be sent and then returned afterwards. In a letter of 26th May 1848 (D-251), Melville notified Strickland that he had intended to enclose the tendon with the foot (Rookmaaker 2010).

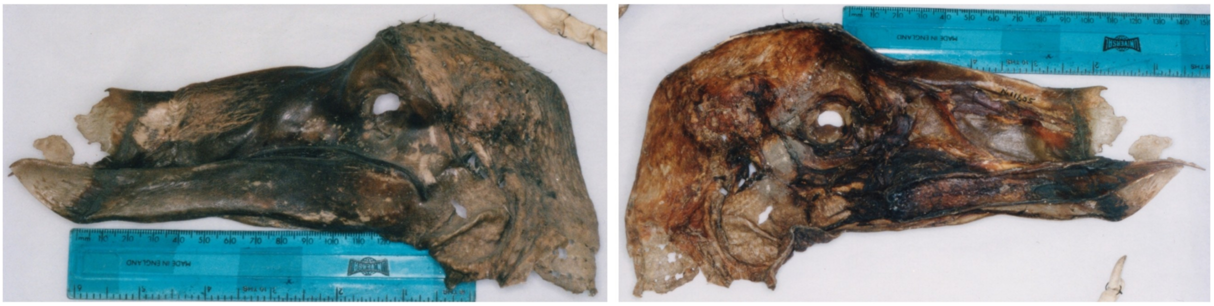


The Tradescant head (*left*: © Errol Fuller, *right*: © Jolyon C. Parish, January 2001).

In a letter of 7th June 1848 (D-129), Ford informed Strickland that his illustration of the head was not yet completed, since he did not receive the specimen until the preceding Thursday and that Melville had need to study it for his anatomical description. Thus, the work had taken six days instead of two, although the quality of the stone he currently possessed was better than that which he had previously. In a later missive (27th June 1848; D-130), Ford wrote that the illustrations of the head had taken longer and had required more attention than expected, although he hoped that the plates would be completed on Tuesday. He stated that Strickland could view the drawings and stone before the latter was to be sent to the printer and added that Melville should have collected the head the previous day, but had not arrived. Ford received £7-12-0 for the work (D-472; Rookmaaker 2010).

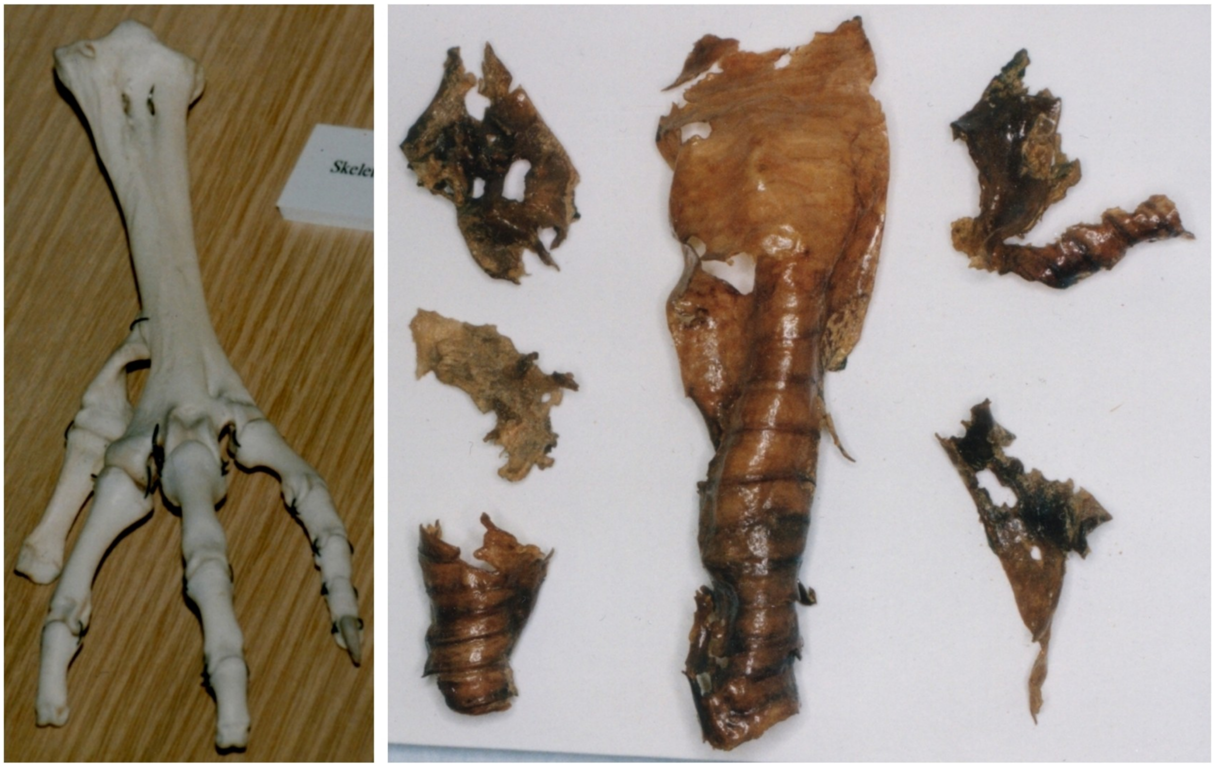


Left: the skin removed from the Tradescant head (© E. C. Parish, 31st August 1999). *Right*: sclerotic ring (*top*: on display: © E. C. Parish, 6th August 1996; *bottom*: © Jolyon C. Parish, January 2001).



The skin removed from the Tradescant head, lateral and medial views (© Jolyon C. Parish, January 2001).

In a letter to Strickland (13th May 1848, written from 16a Great Camden Town; D-247), Melville wrote that he needed to finish his diagrams and that he would get the leg (presumably the Tradescant foot bones) articulated. On 24th May (D-250) he added that he would see about the leg himself. On 26th May he wrote (D-251) that he had intended to enclose the tendon with the foot and in a letter of 29th May (D-252) added that he had sent the tendon of the little toe (Rookmaaker 2010).



The Tradescant foot and foot skin *(left*: © E. C. Parish, 31st August 1999; *right*: © Jolyon C. Parish, January 2001).

The dodo specimens were exhibited in the main public gallery in 1860 (Nowak-Kemp, pers. comm. to Anthony Cheke, *vide* Turvey & Cheke 2008). John Griffiths, Keeper of the Archives at Oxford, wrote to Nicholas Waterhouse[1] in a letter dated 17th August 1866, saying that Oxford would be a most suitable place for "a set of Dodo [bones]". John Phillips (1800-1874), Keeper of the Ashmolean 1857-1874, also wrote to Waterhouse (21st-31st August 1866) accepting his gift of dodo bones, adding that they had arrived safely (Anon. 1973, p.120).[2] The remains of the dodo were placed on a table between cases 2 and 3 in the North Outer Aisle (Acland 1867).

---

[1] Nicholas Waterhouse (1827-1888). Resided at 5, Rake-lane, Liverpool. Secretary 1864-1867 and Librarian 1867-1871 of the Historic Society of Lancashire and Cheshire. Collected autographs. Friend of Vincent Ryan. Ryan was responsible for the sending of dodo bones to England (Anon. 1973).

A letter sent from an Oxford Professor to an anonymous Colonel, dated 5th January 1870, and reported in the Journal of the Straits Branch of the Royal Asiatic Society (Anon. 1878, p.233) mentions the dodo:

> I am much obliged to you for your mention of the Dodo bones. Luckily Mr. Flower, the Antiquarian,[3] is the father of the Mr. (I think now Captain) Flower[4] who was so active in digging in the Mauritius; and as I am an ally of the father, we contrived to get a very large share of those valuable relics for our Museum. We were bound in honor so to do, as before this discovery a skull of that extinct bird which we preserved was the only one, except one in Copenhagen, in the world.
>
> It was very vexatious at first, that discovering of new bones; every fresh discovery reducing the value and interest of our specimen, much as the discovery of the first husband reduces the value of the second in Tennyson's Poem of "Enoch Arden." But we made this out if it.

At the meeting of the Geological Society of London held on 6th March 1867 there were "Bones of the Dodo, from Mauritius; exhibited by S. Flower, Esq." (Woodward *et al*. 1867, p.170). Parker (1868) mentioned a specimen owned by Stephen Flower: "In a Sternum belonging to S. Flower, Esq., of H. M. 13th Regiment. I find a meso-xiphoid (primordial) notch, not figured in Professor Owen's paper [Owen 1867] (see pl. 18)" (p.186).

Tylor (1884) noted that a specimen of *Didunculus* was displayed in the same case as the skeleton of the dodo. In the Report of the Linacre Professor of Comparative Anatomy, Lankester (1891) noted that: "A special case illustrating the chief treasure of the Oxford Museum, viz. the head and foot of Ashmole's Dodo, is being made ready" (p.8). Being finished in 1892, he wrote: "The case containing the Oxford Dodo and the Stonesfield mammalian jaws is now complete. The Dodo's remains are illustrated by a complete set of casts of the British Museum foot and the Copenhagen skull, and by comparison with Didunculus, the Goura and the Solitaire. Drawings, a map and printed explanatory labels, are attached to the tablets on which the specimens are fixed" (p.4). Goodrich (1894, pl.iii) provided a photograph of the Oxford dodo (including "the famous Oxford Dodo, the last Dodo seen living in Europe": p.130) and solitaire specimens, which were "compared bone for bone" with those of extant pigeons. These were contained in a display case alongside Mesozoic mammal specimens. This case was the first of the new ones to be completed (*ibid*.). In 1909 the dodo and solitaire remains were exhibited with bones of *Goura* and figures of the skeletons and pictures of the dodo and solitaire (Vernon & Vernon 1909, pl.ix). This display remained, little changed, until at least the 1960s (see figure in Pickering 2010, p.20).

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[2] Letters listed in Sotheby's Catalogue, sale of 14th March 1973 (lot 793), The Property of T. Waterhouse, Esq.

[3] John Wickham Flower (1807-1873). Antiquarian, natural historian, archaeologist, writer. Friend of George Rolleston.

[4] Stephen Flower (1840-1901). Youngest son of John Wickham Flower. Soldier of the 13th (1st Somersetshire) Regiment of Foot. In 1865/1866 he was a lieutenant; he became captain in July 1869. The 2nd Battalion of the 13th Regiment of Foot were on Mauritius from March 1863 to June 1867, after which they returned to England, arriving in July. The 2nd Battalion would appear to have based at Mahébourg in November 1865 (*The Church of England Temperence Magazine*, 1 Jan. 1866, p.29), and Joseph Berresford, of the 13th Light Infantry, was schoolmaster at Mahébourg. On 1st April 1867 the 2nd Battalion were moved from Port Louis to Flat Island, but were moved back again 23rd May until they departed for England on 7th June. See also Natural History Museum, Dublin.

OUM display (*left*: © E. C. Parish, 6th August 1996; *right*: © Jolyon C. 2nd June 2001).

OUM display (© E. C. Parish, 31st August 1999).

From the Oxford head and bones from Mare aux Songes an articulated skeleton was reconstructed and placed in a specially constructed glazed iron showcase in the OUM (Gunther 1937). During the Professorship of Edwin Ray Lankester (*i.e.* 1891-1898), it was indicated that the skeleton was composed of bones from different individuals and Lankester ordered it to be dismantled and mounted on cards, where they remained until at least the 1930s (Gunther 1937). At this time specimens on display included eleven vertebrae, two sterna, a scapula, coracoid, humerus, ulna, radius, pelvis, femur, tibiotarsus, and tarsometatarsus; these had been presented by Mr. Wykeham. There was also a mandible (Gunther 1937). All these bones are deep brown in colour (Gunther 1937). In the Osteological Catalogue of the OUM the old dodo skeleton is listed under O.C. 851.

OUM diplay, October 2003 (© Jolyon C. Parish).

Oxford dodo and solitaire bones on display: figured: Vernon & Vernon (1909, pl.ix [reproduced in Parish 2013, fig.5.31]); Pickering (2010, p.20).

Raphus cucullatus

No. 2054 wax cast of the OUM foot: "Removed from Dodo Exhibit to stores, Sept. 1982. Coll. Ch. Ch. & Ash. Mus. Coll." Ash. Mus. / Ch. Ch. Hallux broken and reattached, digit II broken off, digit IV broken off.

No. 5040 cardboard box with ref. cat. 5040 and 5041, with accompanying letter and memorandum[5] (J[ane] P[ickering] 6th December 1994, OUM records):

portion of synsacrum and ischium
synsacrum (damaged)
right acetabular region of pelvis
left acetabular region of pelvis
right tibiotarsus
left tibiotarsus + fragment
two right tarsometatarsi
two left tarsometatarsi

Letter accompanying OUM 5040:

> August 2/72
>
> Dear Chaloner
> The "bones" accompany this.
> Take care of them , for I believe
> they are not common. I would not
> give them to any body else , but I
> know you feel interested in things
> of this nature , and that in conse-
> quence they are more useful to you
> than to me. The slip of paper is
> written by Mr. Scott, then Loco-
> motive Superintendent of the Mau-
> ritius Railways , now General Manager
> I believe that he was in company
> of the Governor of the island
>
> when these bones were dug up in their
> presence. They were undoubtedly
> [I mean dug up in Mauritius]
> genuine, but they may prove to be
> only the bones of the Solitaire
> in which case they are valueless
> Vide ~~Dictionar~~ Cyclopaedias
> on the Dodo
> Remember me to all
> Yours very sincerely
> J A[6] Murray

---

[5] Letter from Murray to Chaloner dated August 2/72; Mauritius Railways memorandum slip (No.17), dated 1866.

[6] A transcript of this letter in the OUM records gives the author as "M Murray". However, the initials look more like "J A" (pers. obs.).

> P.S.
> Mr. Scott would hardly have
> gone to the expense of sending them
> so many thousands of miles without
> being tolerably satisfied they were
> really Dodo bones. I also had
>
> some of the earth in which they were
> found – something like guano in appear
> ance , but my mother in "tidying"
> up my cupboard swept ~~up~~ away
> the dirt , or rather put the bones
> in a clean piece of paper! It might
> have been interesting to submit it
> to microscopic examination. At
> home they came under the general
> designation of rubbish

Slip of paper accompanying the above letter (Mauritius Railways memorandum slip (No.17), dated 1866):

> Dodo bones
> from the
> Mare aux Songes

"Mr. Scott" was Walter Henry Scott, General Manager and Engineer of the Mauritius Railways. He was Locomotive Superintendent 1864-1870. The Governor of Mauritius in 1872 was Arthur Hamilton Gordon and in 1865 and 1866 was Henry Barkly.

11605 head, with skin removed from left side to expose the skull
Skin from the left side of the head
Sclerotic plates removed from the left orbit
Skeleton of left foot (lacking unguals of digits I-III)[7]
Six pieces of skin removed from the left foot
Casts of pedal phalanges from the Tradescant foot: two incomplete sets in a box
Cast of the Tradescant head, made prior to dissection[8]
See Parish (2013, pp.210-226)

11606 cast of the Copenhagen skull (lacking mandible): "Cast of Dodo skull. Received in exchange from the Royal Museum of Natural History, Copenhagen 1847". On cast: [black ink] "O.U.M.no.11606."; [brown ink] "Dodo Head Copenhagen". [mandible was broken in 1998]. In the UMZC "Dodo Book" Strickland notes: "I feel myself bound publicly to give my best thanks to Dr v. Hamel, and to request the Class officially to send their thanks to the Directors of the Roy. Museum at Copenhagen for the plaster cast of the Dodo's skull which they sent to our zoological Museum".

11607 plaster cast of the Prague beak

19615 brown wooden box containing specimens purchased by Prof. [John] Phillips at the Stevens sale 14th March 1866 and 29th July 1866:

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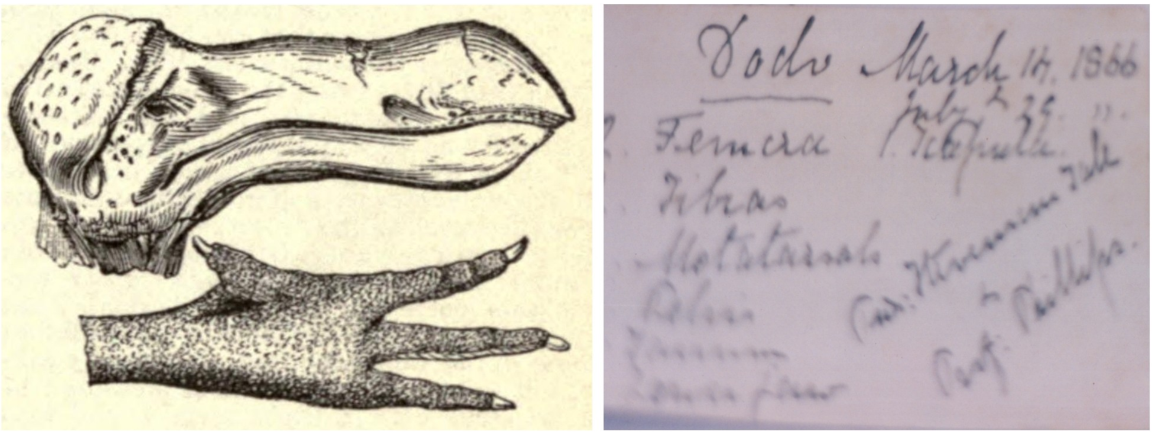
[7] Leunis (1860) erroneously mentions *two* feet at Oxford.

[8] Also included are 21 photographs in box of feather barbules from the skin of the head (1986-7). Source: Tim G. Brom 1987 (see Brom & Prins 1989); one microslide SEM stubs (barbules from head skin).



Dodo March 14. 1866
July 25 "
2 Femora [illegible]
Tibias
Metatarsals
Pelvis
[illegible]
Lower Jaw
Pres: [illegible] to Prof. Phillips.

Left: Tradescant head and foot, after De Blainville (1835) (from Maunder 1852, p.183). *Right*: label accompanying OUM 19615 (© Jolyon C. Parish, 2001).

mandibular symphysis and distal half of right ramus
two proximal ends of right mandibular ramus
two left scapulae
pelvis[9]
left femur
right femur
left tibiotarsus
right tibiotarsus, with section removed from shaft
left tarsometatarsus
right tarsometatarsus

19616 Mare aux Songes. Presented by Flower. Date: ?10/1867. With paper labels "Dodo" and "10/67". In same box as 19615 (J[ane] P[ickering] 6th December 1994, OUM records):
two cervical vertebrae (?6th-8th). Mare aux Songes. Presented by Flower. Date: ?10/1867
left femur. 3/6/76
right femur
left tibiotarsus. 10/67. Flower.
right tibiotarsus, with section of shaft removed
left tarsometatarsus. Mare aux Songes. Presented by Flower. Date: ?10/1867
right tarsometatarsus

19617 brown wooden box containing specimens presented by George Gulliver, 3rd June 1876. Specimens have paper labels "3.6.76" (J[ane] P[ickering] 6th December 1994, OUM records):
cranial fragment (labeled as pelvis). 3.6.76
mandibular symphysis with distal half of right ramus. 3.6.76
mandibular symphysis. 3.6.76
three fragments of middle region of mandibular ramus. 3.6.76
proximal end of right mandibular ramus. 3.6.76
two proximal ends of left mandibular ramus. 3.6.76
cervical vertebra (?4th-6th). 3.6.76
cervical vertebra (?9th-11th). 3.6.76
four fragments of sternum (?from one specimen). 3.6.76
left scapula, lacking distal extremity. 3.6.76
right humerus. 3.6.76
distal end of left humerus. 3.6.76
proximal half of radius. 3.6.76
fragment of shaft of radius. 3.6.76

---

[9] With paper label suggesting it was formerly part of the display comparing the dodo, solitaire and pigeon (see 19619; J[ane] P[ickering] 6th December 1994, OUM records).

very fragmentary pelvis. 3.6.76
left femur. 3.6.76.
left femur (damaged at the extremities). 3.6.76.
right femur, with part of shaft removed. Presented by George Gulliver, 3rd June 1876.
right femur. 3.6.76.
right femur, damaged at the ends. 3.6.76.
left tibiotarsus, damaged proximally. 3.6.76.
left tibiotarsus, damaged at the ends. 3.6.76.
right tibiotarsus, damaged proximally. 3.6.76.
right tibiotarsus, damaged proximally & section of shaft removed. 3.6.76.
?left fibula, lacking distal extremity. 3.6.76.
left tarsometatarsus: "This bone was in display comparing dodo, solitaire + pigeon." 3.6.76.[10]
left tarsometatarsus. 3.6.76.
four right tarsometatarsi. 3.6.76.
distal half of right tarsometatarsus. 3.6.76.
proximal end of right tarsometatarsus. 3.6.76.
two bone fragments

George Gulliver obtained several bones of the dodo, which he sent to George Rolleston at the OUM (letters dated 19th August 1874 and 6th September 1874, OUM records; Hume *et al*. 2009).

19618 peppermint box containing "Parts of pelvis and sacral vertebrae of the Dodo from R. W. J. Gunther, Esq. 1923."[11] Constitutes the left side of the pelvis with pubis, two ribs (J[ane] P[ickering] 6th December 1994, OUM records).

19619 tray containing specimens which had been removed from a display comparing the dodo, solitaire and pigeon (J[ane] P[ickering] 6th December 1994, OUM records):
cervical vertebra (11th), damaged
cervical vertebra (12th), damaged
right scapula
right coracoid
right humerus
left humerus
ulna & radius
pelvis, slightly damaged: "Removed from display."
left femur
tibiotarsus and fibula, left side
right tarsometatarsus

Two damaged sterna: "Dodo material removed from plaques comparing dodo, solitaire and crowned pigeon."
Fragment of distal end of right tibiotarsus
Left tarsometatarsus: "Found with Solitaire bones 19621, 19622 but dodo."[12]
Cast of fragmentary sternum
Cast of fragmentary pelvis
Two coloured casts of the BM foot (on display June 2001).
Coloured cast of the Tradescant head prior to dissection: "Cast of the head and neck of the Oxford Dodo specimen". (On display June 2001).
Wax cast of the Tradescant head (prior to dissection), under a glass dome. Figured: Kallio (2005, p.16).
Bones on display (June 2001): complete mandible, pelvis (lacking left side, damaged caudally; "dodo 3.6.76"), left femur (damaged proximolaterally), right tibiotarsus and fibula.
Skeleton (included under OUM no. 19619). Articulated by Derek Frampton, 1998. The skeleton has eight original cervical vertebrae (OUM 19619, bearing '19619' in black on the ventral surface) and an

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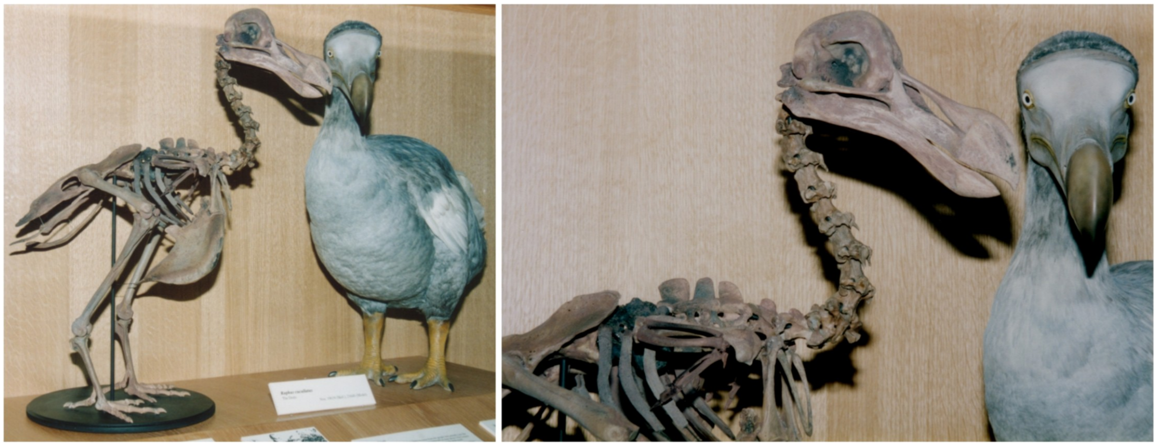
[10] See 19619.

[11] This could be a mistake for Robert William Theodore Gunther (1869-1940), science historian, zoologist and Fellow of Magdalen College.

[12] Identified by J[ane] P[ickering] 16th December 1994 (OUM records).

original notarium (dark colour), the remaining bones are casts or interpolations. The cervical vertebrae are not in the correct order and some are probably duplicates. The skeleton contains bones from a previous skeleton disassembled by Lankester (Van Wissen 1995; see above).[13] Figured: Gill & West (2001, p.139); Pickering (2010, p.19).



OUM skeleton and reconstruction (© E. C. Parish, 31st August 1999).

Below is a partial listing of specimens on display (dates refer to records by the author):

August 1996 (display case below Savery-OUM): OUM 11605 (head, skin from head, sclerotic plates, skeleton of foot, six pieces of skin from foot), two coloured casts of the BM foot, copy of the dodo from Savery-Vienna

August 1999: skeleton (19619), reconstruction (21640)

June-July 2001 (display case in main gallery): two coloured casts of the BM foot, OUM 11606, coloured cast of the Tradescant head prior to dissection, complete mandible, pelvis (lacking left side, damaged caudally; "dodo 3.6.76"), left femur (damaged proximolaterally), right tibiotarsus and fibula, dodo skeleton (19619), dodo reconstruction (21640)

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[13] Notes in the OUM record the following:

Casts of dodo bones loaned to Antony Parker (Liverpool Museum) (6th March 1995). Casts currently in the Grosvenor Museum, Chester [however, these do not appear to be in the Grosvenor Museum collections, nor are they mentioned in their records (Kathryn Riddington, pers. comm., 23rd September 2011). Liverpool, however does possess such moulds (see below)]. Used to articulate the Liverpool Museum skeleton. Moulds borrowed from Liverpool Museum by OUM (loaned from 22nd February 1994 to 22nd August 1994): three vertebrae (1.66.31-1.66.33), six ribs (1.66.120-1.66.126), left and right clavicles (1.66.60), sternum (1.66.58), left and right scapulae, left and right humeri (1.66.110, 1.66.119), pelvis (1.66.54), left and right femora (1.66.62, 1.66.60), left and right tibiotarsi (1.66.72, 1.66.75), left and right fibulae (1.66.91, 1.66.102), left and right tarsometatarsi (1.66.86, 1.66.83).

Nine subfossil dodo vertebrae (OUM 19619) removed 5th May 1998 for articulation by Derek Frampton (Chris A. Norris, 6th May 1998).

Various casts of dodo bones removed for articulation by Derek Frampton: skull (returned 5th October 1998) and mandible (not returned, broke in model-making process), two cervical vertebrae (incorporated into model), approximately eight ribs, two clavicles and coracoids, two humeri, sternum and pelvis (returned 5th October 1998), two femora, two tibiotarsi and fibulae, two tarsometatarsi and digits (Chris Norris 6th May 1998).

Print of dodo skeleton removed 5th May 1998 for loan to Derek Frampton, for the articulation of the skeleton (Chris Norris 6th May 1998); returned 5th October 1998. Also pelvis (OUM 19619), and casts of mandible and beak (OUM 11607) passed to Derek Frampton (8th July 1998).

Pelvis (OUM 19619) returned 5th October 1998, casts of mandible and beak (OUM 11607) returned. Subfossil vertebrae (OUM 19619) incorporated into skeletal mount. On 5th October 1998 Derek Frampton delivered the completed dodo model and skeleton to the OUM. Both models were installed in the new dodo display case by Denise Blagden and David Gibbs on 9th October 1998 (Jo Hatton 9th October 1998).

Specimens not on display are housed in the Wilberforce Room (first floor).

Casts of the BM foot on display (*left*: © E. C. Parish, 31st August 1999; *right*: © Jolyon C. Parish, October 2003).

Pezophaps solitaria

Specimens were collected during the Transit of Venus Expedition, February 1876.

19618 sternal rib (19618 C)

fragmentary pelvis (synsacrum and complete left side of pelvis) (19618 C) (♂)

19620 "Solitaire material from plaques comparing dodo, solitaire and crowned pigeon":

cranium (♀)

cervical vertebrae: atlas, axis, 3rd, 4th & 5th (all glued together); 6th, 7th, 8th; 9th & 10th (glued together); 11th & 12th (glued together) (all ?♀)

fragmentary notarium with 18th vertebra attached (?glued) (♀)

fragmentary sternum (♂)

complete furcula

right scapula (♀)

right coracoid (♂)

two left humeri (one ♂ & one ♀)

ulna (♂)

two radii (♀)

radius (with exostotic distal end) (♂)

left carpometacarpus (?♂) with a detached exostosis probably belonging to the same specimen

left carpometacarpus (without exostoses) (♂)

pelvis (damaged cranially on left side & caudally) (?♂)

left femur (♂)

left tibiotarsus & attached (glued) proximal part of left fibula

left & right tarsometatarsi (♂)

proximal end of right tarsometatarsus (♂)

pair of first metatarsals

19621 wooden box containing casts from the Andersonian Museum collection (label: "O:C 847^{c} No.19621"). Casts bear "Anderson Museum, Glasgow" in ink:

left femur (lacking distal extremity) (♀)

right femur (♀)

shaft of right femur (♂)

left tibiotarsus (♂)

left tarsometatarsus (♂)

proximal half of right tarsometatarsus

19622 "Bones obtained through Professor [Alfred] Newton, Cambridge 18·5·1869". In same box as 19621

(J[ane] P[ickering] 16th December 1994, OUM records). With paper labels “Solitaire 18.5.69”.
right humerus (?♀)
radius (?♂)
fragmentary synsacrum
left femur (?♀)
right femur (♀)
left tibiotarsus (♂)
left tibiotarsus (?♀)
right fibula (lacks distal end)
right tarsometatarsus (slight damage to extremities) (♂)
right tarsometatarsus (♀)
pedal phalanx

19623 three fragmentary pelves. 26.2.76.
fragmentary pelvis (synsacrum & most of right side) (?♂). 26.2.76.
fragmentary pelvis (damaged proximally & distally) (♂). 26.2.76.

19624 fragmentary sternum (mostly complete) (♀): “Removed from display plaques comparing dodo, solitaire + crowned pigeon.” 26.2.76.

19625 vertebrae[14]: axis (♀), two 3rd cervicals (♀), fifteen cervicals (?4th-?10th) (mostly ♀), 11th cervical (♀), two 12th cervicals (♀), 12th cervical (?♂), ?13th cervical (?♀), ?14th (?♀), ?14th (?♂), two ?18th (?♀), ?18th (?♂), four fragmentary notaria, two ?18th (or ?17th), + small bone fragment

19626 femora (♂): four right side & three left side. 26.2.76.
femora (♀): eight right side & eight left side. 26.2.76.

19627 left tibiotarsus (♂). 26.2.76.
left tibiotarsus (♀?). 26.2.76.
left tibiotarsus. 26.2.76.
right tibiotarsus (♂?). 26.2.76.
right tibiotarsus (♂). 26.2.76.
right tibiotarsus (♀). 26.2.76.
right tibiotarsus. Damaged distal end. 26.2.76.

19628 two left tarsometatarsi (♂). 26.2.76.
seven left tarsometatarsi (♀). 26.2.76.
two right tarsometatarsi (♂). 26.2.76.
six right tarsometatarsi + distal ⅔ of tarsometatarsus (♀). 26.2.76.

19629 two left coracoids (♂) (including one “Removed from display plaques comparing dodo, solitaire + crowned pigeon”)
two left coracoids (♀). 26.2.76.
right coracoid (♂). 26.2.76.
two right coracoids (♀), (including one with exostotic development). 26.2.76.

19630 left scapula (♂) with pathologic/taphonomic markings. 26.2.76.
proximal half of left scapula (♂). 26.2.76.
two scapulae: one left and one right (♀). 26.2.76.
two left scapulae (?♀), 1 right scapula (?♀). 26.2.76.

19631 two left humeri (♂). 26.2.76.
two left humeri (♀). 26.2.76.
left humerus (♀), in proximal & distal halves. 26.2.76.
four right humeri (♀). 26.2.76.
three right humeri (♂). 26.2.76.

19632 three left ulnae (♂)
left ulna (♂) in two halves
two left ulnae (♀)
three right ulnae (♂)
right ulna (♂) lacking distal extremity
right ulna (♂) with damaged proximal extremity

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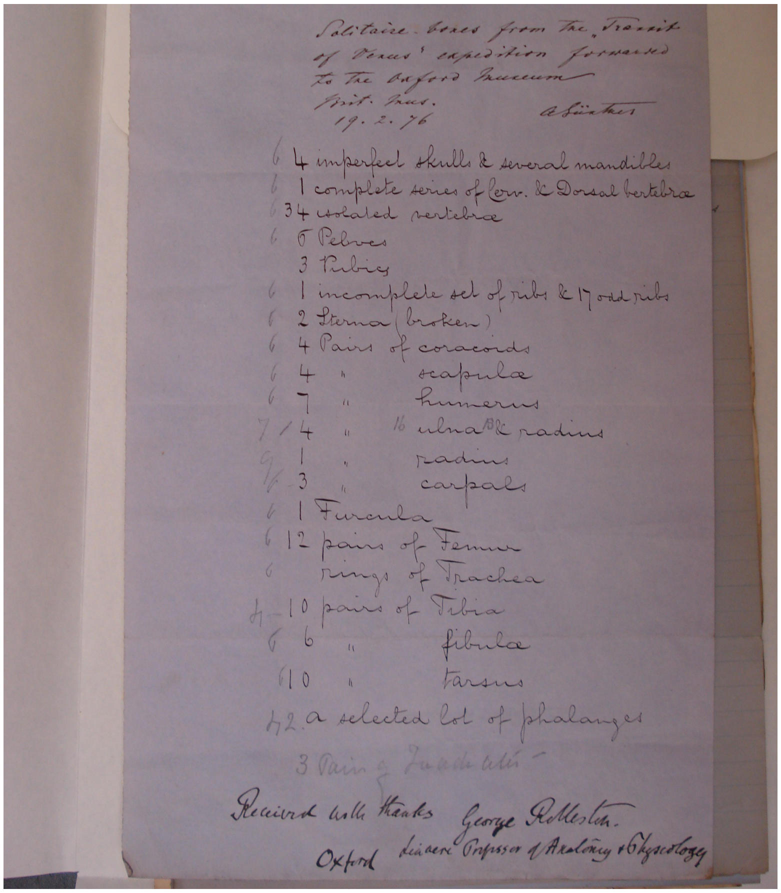
[14] 37 vertebrae (J[ane] P[ickering] 16th December 1994, OUM records).

three right ulnae (♀)
19633 seven radii (with exostoses) (♂)
nine radii (♀)
19634 left carpometacarpus (♀)
two right carpometacarpi (♀)
exostotic carpometacarpus fragment
19635 cranium (sectioned sagittally: two halves), right maxilla & premaxilla, left maxilla, pair of palatines (all separate). Label on cranium: "Removed from display plaques comparing dodo, solitaire + crowned pigeon."
cranium. 26.2.76.
premaxilla and part of right maxilla
two premaxillae
three left quadrates
three right quadrates
mandibular symphysis and distal half of right ramus
two proximal ends of left mandibular ramus
proximal part of left mandibular ramus
proximal ~¾ of left mandibular ramus
proximal ~¾ of right mandibular ramus
proximal half of right mandibular ramus
two proximal ends of right mandibular ramus
two bone fragments
19636 vertebral ribs: thirteen right, nine left
vertebral rib
four short vertebral ribs (costae incompletae)
seventeen sternal ribs
four rib fragments
19637 fibulae: six right, five left
19638 34 pedal phalanges + three left & three right specimens of first metatarsal
Matchbox containing numerous tracheal rings
[19623 to 19638 are contained in two wooden boxes, Transit of Venus material. The specimens arrived at the museum on 28th February 1876. Most have paper labels "Solitaire 26.2.76" and a few only have "Solitaire" in ink (J[ane] P[ickering] 16th December 1994, OUM records)]
[Specimens, which had been removed from display, contained in a tray were reallocated: those with paper labels which could be assigned to Transit of Venus material were added to that collection, and the rest catalogued under 19620. From the ink written "Solitaire" on these latter Jane Pickering surmised that they were also Transit of Venus specimens (J[ane] P[ickering] 16th December 1994, OUM records)]

DF 202/9, Correspondence and papers relating to distribution of collections and preparation of reports 1875-1876, Royal Society Transit of Venus Expeditions, NHMUK General Library Archives:

Solitaire-bones from the „Transit
of Venus" expedition forwarded
to the Oxford Museum
Brit. Mus.
19. 2. 76 AGünther
4 imperfect skulls & several mandibles
1 complete series of Cerv. & Dorsal vertebræ
34 isolated vertebrae
6 Pelves
3 Pubics
1 incomplete set of ribs & 17 odd ribs
2 Sterna (broken)

4 Pairs of coracoids
4 " scapulæ
7 " humerus
4 " ulna & radius
1 " radius
3 " carpals
1 Furcula
12 pairs of Femur
rings of Trachea
10 pairs of Tibia
6 " fibulæ
10 " tarsus
A selected lot of phalanges
3 Pairs of Quadrates - [in pencil]
Received with thanks
George Rolleston.
Linacre Professor of Anatomy & Physiology
Oxford



Solitaire bones from the "Transit of Venus' expedition forwarded to the Oxford Museum
Brit. Mus.
19. 2. 76 A Günther

6 4 imperfect skulls & several mandibles
6 1 complete series of Cerv. & Dorsal vertebræ
6 34 isolated vertebræ
6 6 Pelves
3 Pubis
6 1 incomplete set of ribs & 17 odd ribs
6 2 Sterna (broken)
6 4 Pairs of coracoids
6 4 " scapulæ
6 7 " humerus
7 / 4 " 16 ulna 13 & radius
9 1 " radius
6 3 " carpals
6 1 Furcula
6 12 pairs of Femur
6 rings of Trachea
4 10 pairs of Tibia
6 6 " fibulæ
6 10 " tarsus
42 a selected lot of phalanges
3 Pairs of Quadrates –
Received with thanks George Rolleston.
Oxford Linacre Professor of Anatomy & Physiology

(© David Gonzalez)

There are pencil marks next to the entries for skull and mandibles, vertebrae, pelves, ribs, sterna, coracoids, scapulae, humeri, radius, carpals, furcula, femora, tracheal rings, tibiotarsi, fibulae and tarsometatarsi. The entry for ulnae and radii has the following pencil annotations: '7' next to the entry, '16' next to 'ulna' and '18' adjacent to "& radius". The entry for the phalanges has '42' in pencil adjacent to it. The entry for "3 Pubics" lacks any annotation.

[Comparing the above list with the current collection, one ulna and nine tibiotarsi (three left, six right) appear to be missing.]

In a letter dated 1st October 1948, Hialmar Rendahl, Director of the Vertebrate Department of the Naturhistoriska Riksmuseum in Stockholm, wrote to the director of the Oxford University Museum and requested the loan of the Transit of Venus *Pezophaps* material that exhibited exostoses to the Riksmuseum for an osteological study. The material he requested was as follows: about 32 carpometacarpi, thirteen ulnae, four radii, one fibula, and two tarsometatarsi, plus one humerus, and two coracoids with exostotic fractures.

The Daubeny Laboratory, Magdalen College, Oxford

Raphus cucullatus

Amongst the specimens formerly housed in the Daubeny Building, but since displaced, were: "15. A collection of bones of the *Dodo* from Mauritius" (Gunther 1924, p.453). At Magdalen College there is a small box of small fragments, including elements that appear to be petrified wood and bone (Christine Ferdinand, pers. comm., 8th May 2012), which may represent this material.

The Natural History Museum, London

The Natural History Museum, Cromwell Road, London SW7 5BD (formerly the British Museum (Natural History))

The Natural History Museum, Akeman Street, Tring, Hertfordshire, HP23 6AP (formerly the Walter Rothschild Zoological Museum)

At one stage the specimens of the dodo were "fought over by two departments [Zoology and Palaeontology] of the museum" and were subsequently to be found exhibited in those departments (Howorth 1896, p.115). Some bones were transferred from the Zoology Department to the Palaeontology Department in 1921 (Sandra Chapman, pers. comm., 17th April 2012). No transfer of registered dodo material has been made between the South Kensington and Tring collections recently, but there has been at least one transfer made in the past (S1988.50.1) (Joanne Cooper, pers. comm., 19th May 2008).

Notes:

- The insitutional abbreviation BMNH has now been replaced by NHMUK. NHMUK PVA is the acronym for the Aves section of the Vertebrate Palaeontology collections.
- The '76.1.28.' and '68.12.28.2' numbers are registration numbers from the Department of Zoology, British Museum (Natural History).
- According to Hume *et al*. (2014b), the letters 'MB' marked in ink on many of the solitaire bones collected by Slater stand for "Miscellaneous Bones", *i.e.* unassociated elements, and were marked thus by him. However, only those bones in the NHMUK collections bear these letters: bones collected during the Transit of Venus Expedition in other collections do not.
- The museum of the Zoological Society was located at 11 Hanover Square, London. Newton & Newton (1868) noted that the ZSL specimens had "since [been] transferred to the British Museum" (p.159 [11th June 1868]).
- Hume & Steel (2013) list NHM PVA 9041-9047. At least some of these specimens are the same as listed below (A.3507). At present it is not known whether the others are as well.
- For details concerning the ZSL *Pezophaps* specimens see Parish (2013, pp.228-231).

The following is a chronology illustrating where the various BM specimens were displayed:

1808: Table 1, Room XI ("Birds and Quadrupeds, stuffed") of the Upper Floor of the museum: Savery-BM, leg "in a glass" (Anon. 1808a)

1814: Room XI (Anon. 1814)

1815: Room X, case 20, "in the lowermost division is deposited the supposed leg of the Dodo, etc." (*Synopsis*, 1815, quoted in Sharpe 1906, p.161).

1816: "Room X. Nat. Hist. *Zoology*" "No.20. Contains some curious nests and eggs of birds [...] in the lowermost division is deposited the supposed leg of the dodo, &c." (Anon. 1816, p.53).

1818: Room VIII. "Nat. Hist." Case 13: "On the lowermost shelf is deposited the supposed leg of the Dodo, &c." (Anon. 1818b, p.52).

1821: as 1818 (Anon. 1821b).

1824: as 1818 (Anon. 1824b).

1825: Eleventh Room: "In this room there is a curious picture, executed many years ago in Holland, of that extremely rare and curious bird, the dodo, belonging to the tribe gallinæ" (Clark 1825, p.627).

1829: Anon. (1829): "The only authentic original figure of the Dodo, is a painting in the British Museum, which is said to have been taken from the living bird [...] Beneath the painting is a Dodo's leg, in a fine state of preservation" (p.250).

1832: Case 65, Room XIII: leg. Savery-BM over the door adjoining Room XII (Anon. 1832a).

1832: "painting of it in the British Museum [...] Beneath the painting is a leg, in a fine state of preservation" (Lyell 1832, p.151)

1835: Gray (1839, p.364) noted that "Dodo ineptus, (cast of the head of,) taken from the specimen in the Ashmolean Museum" was "Presented by P. B. Duncan, Esq." in 1835.

1838: Room XIII: cases 58-60 contain "the foot of the Dodo, and a cast of the head of that extraordinary bird" (Anon. 1838a, p.79). "Over the door adjoining the Twelfth Room, is an original painting of the Dodo" (p.82). Foot is is case 65.

1839: Room XIII, Case 65: leg of the dodo. Savery-BM (Gray 1839).

1840: the bird collection, including those from Room XIII, was in the process of rearrangement in the East Gallery.[15]

1842: Eastern Zoological Gallery. The Dodos (*Didinæ*, Case 108) [...] are only known by remains, as, for example, the foot in this Case (presented by the Royal Society), and a head (of which a cast is in this Case) and foot, said to have belonged to a specimen which was formerly in Tradescant's Museum, now forming part of the Ashmolean Museum of Oxford [...] An original painting of this bird, presented to the Museum by George Edwards, and copied in his works, plate 294, who says it was "drawn in Holland, from a living bird brought from St. Maurice's Island, in the East Indies," is placed on the back of the Case" (pp.37-38). Also kept in Case 108 were remains of the *Apteryginæ*.

1844: cast of the Tradescant head, dodo foot (Anon. 1844). Carl Gustav Carus was shown the collection by Gray on 11th June 1844. Amongst other items, Carus examined the BM foot (Carus 1845).

1848: Bird Gallery: Savery-BM, dodo foot (Strickland 1848); "in one of the cabinets of the ornithological department" (Hamel 1848, p.154).

1850: Eastern Zoological Gallery, case next to that of the ostriches (108) leg, Savery-BM (Masson 1850)

1852: Eastern Zoological Gallery, "case (108), which contains a foot, the cast of a [dodo] skull, and a painting [Savery-BM]", along with remains of the "New Zealand wingless bird" (Jerrold 1852, p.31).

1855: Case 108 leg, cast of the Tradescant head, Savery-BM (Anon. 1855a, b; Jerrold 1852). "Eastern Zoological Gallery"; Wall Cases 107-134. The Wading Birds"; "Case 108. The DODO" (Anon. 1855, p.16). Prices of Casts: "Foot of Dodo" 2 shillings (Anon. 1855a).

"In (108) are the foot, a plaster-cast of the head, and a painting of the Dodo" (Anon. 1855b).

1856: "Eastern Zoological Gallery"; "Wall Cases 107-134. The Wading Birds"; Case 108. Prices of Casts: "Foot of Dodo" 2 shillings (Anon. 1856a).

1859: Case 108: head (presumably a cast) and foot and Savery-BM (Payne 1859).

1866: Upper Floor, Eastern Zoological Gallery: "The remains of the bird called the Dodo, which has long been extinct: the foot in the Case belonged to a specimen in Tradescant's Museum at Lambeth [this is incorrect]; the painting is said to have been made from a living bird, brought from the Island of Mauritius, to which the species is peculiar. The selection of bones in the second case, including the breast-bone or sternum, the pelvis, the skull and leg-bones, was obtained from a turbary in the Mauritius, and exemplifies the affinity of the Dodo to the doves" (Jones 1866, pp.11-12).

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[15] Gray, J. E. 1840 Natural History, *in* Synopsis of the Contents of the British Museum, *London: Printed by G. Woodfall*, pp.18-84. (Forty-first edition).

1867: Gray (1867) reported that: "A series of the Bones of the Dodo, from Mauritius, has been added to the collection, and they are placed with the leg and cast of the head in the public room. These bones have been described by Professor Owen, in the "Transactions of the Zoological Society."" (p.49).

1869: Gray (1869) recorded that in 1868 "Twenty-two bones of the extinct *Pezophaps solitaria* of Strickland, from the Island of Rodriguez; presented by Edward Newton, Esq., M.A., Colonial Secretary of the Isle of Mauritius" (p.36).

1870: Gray (1870) noted that: "The skeleton of the Dodo, forming the type specimen on which Professor Owen has written and published an elaborate memoir, has been restored" (p.24).

1871: Owen's dodo skeleton (A.9040): "the specimen is now exhibited in the Ornithological Gallery of the British Museum" (Owen 1871b, p.513). The plates of the skeleton accompanying Owen's description were "taken from photographs, corrected, as to perspective and better indication of details, from the subject" (*ibid*., p.525). Anon. (1871a) mentioned "Two Photographs of the Skeleton of the Hooded Dodo (*Didus ineptus*)" presented to the Royal Society on 9th February 1871 by the Trustees of the British Museum (p.347) – these were presumably copies of the above-mentioned photographs.

1873: Upper Floor, Eastern Zoological Gallery: "Opposite the upright case 108, is placed a glass case containing the skeleton of the birds called the Dodo [...] with the skeleton are exhibited a foot, belonging to a specimen which was formerly contained in Tradescant's Museum at Lambeth [this is incorrect], and also various models of head, skulls, and bones of the foot. An oil-painting of this remarkable bird is hung in the upright case 108, which is said to have been made from a living bird, brought from the island of Mauritius, to which the bird was peculiar. The selection of bones of the Dodo, shown in a small case on the right side of the skeleton, as well as the skeleton, was obtained from a turbary in the island mentioned. On the left side of the skeleton is also placed a small case containing a series of bones of *Pezophaps solitarius*" (Jones 1873, p.12). The case containing the dodo specimens adjoined that containing specimens of *Porphyrio* (*Notornis*) *hochstetteri* (Buller 1873).

1877: Upper Floor, Eastern Zoological Gallery: "Opposite the upright case 108, are placed three glass cases containing skeletons and other remains of three birds [the dodo, solitaire and *Cnemiornis*]." With the dodo's "skeleton are exhibited a foot [...], and also various models of head, skulls, and bones of the foot. An oil-painting of this remarkable bird is hung in the wall case 108 [...] The selection of bones of the Dodo, shown in a small case on the right side of the skeleton, as well as the skeleton, were obtained from a turbary in the island mentioned. The two skeletons in the case on the right side of the Dodo represent a male and female of the *Solitaire* (*Pezophaps solitarius*) from Rodriguez [...] The skeletons were discovered by one of the naturalists accompanying the Transit of Venus Expedition in 1874, and presented by the Royal Society of London" (Jones 1877, pp.13-14). Günther (1877) noted: "Of the acquisitions of Vertebrate Animals, only examples of large size, or such as will contribute to the instruction of the general public, have been mounted for exhibition in the galleries: thus, for instance, [...] skeletons of the Solitaire (*Pezophaps solitarius*), male and female" (p.25).

1878: two solitaire skeletons described by Owen (1878) were placed in the "gallery of the British Museum" (Salvin & Sclater 1878, p.470).

1879: Owen's dodo skeleton (A.9040) "displayed in the Ornithological Gallery of the British Museum" (Owen 1879, p.36).

1885: Woodward (1885) recorded: "SOUTH-EAST PAVILION.–The Bird-remains in Table-case 12 have been partly re-arranged and additional specimens have been mounted and placed for exhibition in the new Wall-cases (18 and 19), including remains of *Æpyornis*, *Dinornis*, with casts of the head and foot of the "Dodo" from the Island of Mauritius, and a skeleton of the "Great Auk" from Funk Island" (p.54).

1886: Woodward (1886) recorded: "THE PAVILION.–Aves.–A small but instructive series of remains of the "Dodo" have been added to the bones of extinct birds, in Wall-case No. 19; from the recently acquired collection of John Edward Lee,[16] Esq., F.G.S." (p.54). "Twelve bones of *Didus ineptus*,

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[16] John Edward Lee (1808-1887). English antiquary and geologist. He donated his large collection of fossils to the BM(NH) in 1885.

Mauritius, and one bone of *Dinornis*, New Zealand. Presented by John Edward Lee, Esq. F.S.A., F.G.S." (*ibid*., p.58).

1889: Woodward (1889) noted that: "Wall-case 25, in the Pavilion, has been re-fitted, and the remains of *Æpyornis*, *Didus*, *Alca*, &c., remounted, re-arranged, and labelled" (p.65).

1890: Wall-case 25 (between the windows at the southeast corner of The Pavillion, on the East Side, Ground Floor of the museum): Owen's skeleton (A.9040), displayed along with remains of the elephant bird and great auk (Woodward 1890)

1891: Lydekker (1891) listed the subfossil remains of the dodo and solitaire (see below)

1893: Salvadori (1893) listed remains of the dodo and solitaire (see below). Woodward (1893) recorded: "Aves.–Forty bones of Dodo (*Didus ineptus*, Linn.) from the Isle of Mauritius; presented by [...] Charles Cameron Lees,[17] K.C.M.G., the Governor of the Mauritius" (p.123).

1895: Woodward (1895) recorded that: "A collection of bones of the Dodo, presented by Sir Charles Cameron Lees, K.C.M.G., has been registered, and some of the specimens exhibited" (p.130).

1900: Department of Geology. Aves (Gallery 2): "A restored skeleton of the Dodo (*Didus ineptus*), from Mauritius, has been articulated and mounted in a separate case" (Woodward 1901, p.135). Under "Work of the Mason-Fromatore and Assistant-Mason", Woodward noted the following: "Articulating new skeleton of *Dodo*, modelling missing parts of skull, vertebræ, ribs, toe-bones, &c., and making ironwork and setting up in glazed show-case" (*ibid*., p.144).

1903: "*Aves* (Gallery 2).–No additions have been made to the exhibited collection of Fossil Birds, except a phalangeal of the hallux of the Dodo [A.838]" (Woodward 1904, p.139).

1904: Department of Geology and Palæontology, Galleries of Fossil Mammals and Birds: "A reconstructed skeleton, with plaster casts of the head and foot, of the extinct dodo [...] is exhibited in Case BB, and there are other bones in Wall-case 25. This bird, however, is better illustrated in the Department of Zoology, where there is also a skeleton of the allied solitaire (*Pezophaps*)" (Lankester 1904, p.90).

1905: Table-cases 19 & 20 of the Gallery of Birds: Owen's skeleton (A.9040). Savery-BM exhibited in adjoining wall-case. The Bird Gallery had been arranged by William Robert Ogilvie-Grant (Ogilvie-Grant 1905). Photograph of dodo skeleton and foot (Ogilvie-Grant 1905, pl.ii) by Mr. R. B. Lodge.[18] Photograph of the BM dodo skeleton (NHMUK 9040) and BM foot, by "M^{r} R. B. Lodge, 2 February, 1905" (NHM Archives, London: PH/173/739). Photograph of the BM dodo skeleton (NHMUK 9040) and BM foot, by "M^{r} R. B. Lodge, 2 February, 1905" (NHM Archives, London: PH/173/740). Photograph of the BM dodo skeleton (NHMUK 9040), BM foot, cast of the Tradescant head, tarsometatarsus, by "M^{r} J. G. Ellis, 27 February, 1905" (NHM Archives, London: PH/173/755).

1906: Bird Gallery: "In separate [wall] cases in the sixth bay on the opposite side of the gallery [to the Birds of Paradise and Bower-Birds; on the right-hand side when entering] are placed skeletons of the Dodo and Solitaire" (Anon. 1906, p.39).

1907: photograph by John Benjamin Stone, July 1907 (NHM Archives, London: J Benjamin Stone gallery photographs PH/128/7): dodo skeleton, coloured cast of the Tradescant head, uncoloured cast of the Copenhagen skull, uncoloured cast of the Prague beak, BM foot on plaque, two tarsometatarsi. Verso:

COM. 27 JUL. 1907

PRESENTED
9 JAN. 1908

[BMNH Stamp]

128/7p

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[17] Charles Cameron Lees (1837-1892). Governor of Mauritius 1889-1892. His governorship ended on 12th March 1892 and he died on 26th July of that year. He donated dodo bones to the NHMUK in 1892.

[18] Reginald Badham Lodge (1852-1937). Bird photographer and Tring correspondent. Took photographs of the NHMUK dodo specimens (NHM Archives PH/173/739, PH/173/740).

[BRITISH MUSEUM
· 27 JUL. 1907 ·
NATURAL HISTORY]

PHOTO COLLECTION 128/1-33

Signed: "J. Benjamin Stone July 1907".
"7" in pencil on mount board

1909: Killermann (1915) saw the dodo remains in 1909, kept in a showcase, under glass. He lists them as follows:
- a) Owen's skeleton (A.9040), assembled from bones from Mare aux Songes found by G. Clark in 1865
- b) the preserved right foot
- c) casts of the Tradescant head and foot bones in the Oxford Museum
- d) cast of the Copenhagen skull
- e) cast of the Prague beak
- f) Savery-BM in the same case.

1909: Case CC skeleton, plaster casts of head and foot. Wall-case 25: other bones (Woodward 1909). The dodo "is better illustrated in the Department of Zoology, where there is also a skeleton of the allied solitaire (*Pezophaps*)" (Woodward 1909, p.90).

1911: A cast of the Oxford head, made prior to its dissection, was figured by Zur Strassen (1911, Taf. "Regenpfeifervögel IV", fig.3), as was the BM foot (*ibid*., fig.4) (see Parish 2013, figs.5.15, 5.34).

1911: Woodward (1911) recorded the purchase of "Twelve bones of the Dodo, collected by the late George Clarke in the Mare-aux-Songes, Mauritius" (p.186).

1921: Ogilvie-Grant (1921, p.37): "Remains of these now famous birds [the dodo and solitaire] will be found in two of the Table-cases in this bay"; "Table-cases & Picture in Cases 19 & 20"; "The exhibited examples of the Common and White Dodos are restorations. One of the most interesting paintings is exhibited in the adjoining Wall-case, and is a portrait from life, painted in Holland by Roelandt Savery". With photograph of dodo skeleton and BM foot (pl.ii, fig.2). Dodo (*Didus ineptus*) (205), Réunion Dodo (*Didus borbonicus*) (205a), Solitaire (*Pezophaps solitarius*) (206).

1927: Savery-BM in the Bird Gallery (Wood 1927).

1931: "In the sixth bay are the remains and restorations of the gigantic extinct flightless pigeons, the dodo from Mauritius, the white dodo from Reunion, and the solitaire from Rodriguez. There is also exhibited a portrait from life of the dodo, painted in Holland by Roelandt Savery" (Monro 1931, p.62).

1934: "A reconstructed dodo skeleton, with plaster casts of the head and foot, of the extinct dodo [...] is exhibited in Case CC, and there are other bones in Wall-case 25" (Anon. 1934a, p.6). The labels of the two *Pezophaps* skeletons, from the Transit of Venus Expedition of 1874, on display at the NHMUK (presumably A.3505, A.3506) read: "The bird has long been completely extinct, but the numerous bones which have been found in the island, from which the two skeletons exhibited have been constructed, corroborate the truth of Leguat's account in every detail, even to the 'little round mass' of bone on the wing, 'as big as a musket ball' with which the males fight" (quoted in Mortensen 1934, p.71).

1965: Swinton (1965): "Skeletons [...] and reconstructions of its [the dodo's] living appearance are in several museums, and can be seen in the Bird Gallery of this Museum" (p.57). Swinton also figured Savery-BM (plate 10).

Owen's dodo skeleton (A.9040) was formerly in a display case by itself in an alcove off the east side of the Main Hall of the NHMUK, just north of Waterhouse Way (pers. obs. 1993, 2008), but is currently displayed in the Cadogan Gallery (which opened on 30th November 2012) in the Green Zone's Central Hall on the upper mezzanine floor. It was recently removed temporarily from display in order to CT scan the cranium (Stig Walsh, pers comm., 10th June 2010).

Raphus cucullatus

A.70 right ulna. Locality unknown. Presented by Richard Owen. (Lydekker 1891, p.130).

A.72 bones attached to a board: left and right femora, left and right tibiotarsi, pelvis (damaged caudally), left and right tarsometarsi. Proximal end of right mandibular ramus. Plaisance, Grand Puet. Superficial deposits, Pleistocene. Presented by John Edward Lee, 1885. (Lydekker 1891, p.129). [Label reads: "For Original Label see "Collection Notes" No.1."]

A.72a proximal end of left mandibular ramus. Plaisance, Grand Puet. Superficial deposits, Pleistocene. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72b imperfect anterior portion of sternum, showing coracoid grooves. Plaisance, Grand Puet. Superficial deposits, Pleistocene. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72c fragment of caudal end of sternum. Plaisance, Grand Puet. Superficial deposits, Pleistocene. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72d imperfect pelvis and sacrum. Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72e right femur Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

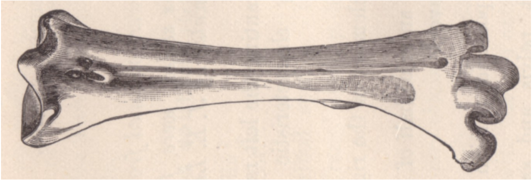
A.72f right femur, with the extremities imperfect. Plaisance, Grand Puet. Superficial deposits, Pleistocene. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72g right tibiotarsus. Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72h left tibiotarsus, with proximal extremity imperfect. Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72i right tarsometatarsus. Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129).

A.72j left tarsometatarsus. Plaisance, Grand Puet. Superficial deposits. Presented by J. E. Lee, 1885. (Lydekker 1891, p.129, fig.31).



A.72j (Lydekker 1891, fig.31).

A.372 cast of 18th vertebra. Pleistocene. Original figured: Newton & Gadow (1893, pl.37, figs.2a, b, c).

A.430 nine portions of mandible: distal ~half of right ramus, symphysis and distal ~half of right ramus, distal ~half of right ramus, six portions of middle part of ramus (five left, one right). Pleistocene. Presented by Chas (= Charles) Cameron Lees, 1892.

A.431 pelvis (damaged), and pelvis and sacrum (damaged) with the same catalogue number. Mauritius. Pleistocene. Presented by Chas Cameron Lees, 1892.

A.432 three portions of acetabular region of pelvis, right side, portion of left side of pelvis (including acetabular region). Pleistocene. Presented by Chas Cameron Lees, 1892.

A.433 two right femora, three left femora. Pleistocene. Presented by Chas Cameron Lees, 1892.

A.434 right tibiotarsus, right tibiotarsus (damaged proximocranially), left tibiotarsus (damaged proximocranially), left tibiotarsus (some slight damage proximally & distally), left tibiotarsus (damaged proximocranially), left tibiotarsus (slight damage proximocranially). Pleistocene. Presented by Charles Cameron Lees, 1892.

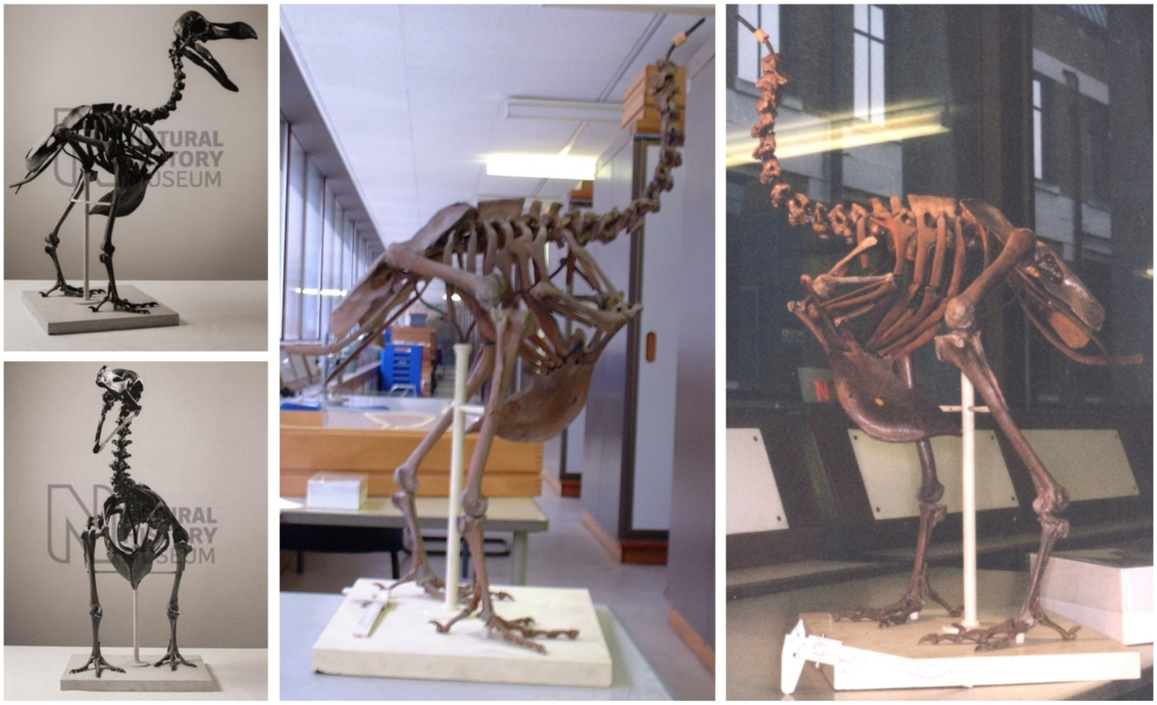
A.435 two right tarsometatarsus, right tarsometatarsus (slightly damaged proximally), three left tarsometatarsi. Pleistocene. Presented by Charles Cameron Lees, 1892.

A.436 right scapula (slight damage to acromion process and distally), right scapula (from a scapulocoracoid, slightly damaged distally), five left scapulae (slightly damaged distally). Pleistocene. Presented by Charles Cameron Lees, 1892. Figured: Parish (2013, fig.6.11).

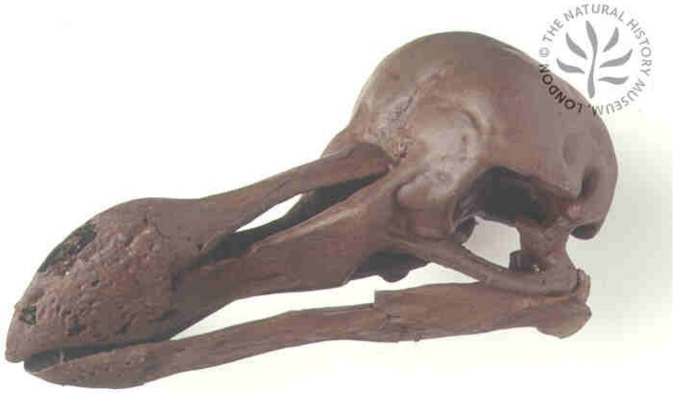
A.726 sternum. Listed by Hume & Steel (2013).

A.729 mounted composite skeleton with some non-fossil elements. Not on display. Mare aux Songes material. Assembled between 1892/1893 and 1900 (Sandra Chapman, pers. comm., 17th April

2012). The skull is a cast (lacking left pterygoid) with original mandible and distal extremity of premaxilla (corpus ossis premaxilla). The skull and attached mandible are currently separate from the rest of the skeleton. Figured: Kallio (2005, endpapers, pp.28, 29, 31, 32-33); Hume (2009a, p.50); Hume (2009b, p.26); Parish (2013, fig.6.4). NHM Picture Library Images 33779, 33780. Skull figured: Walker & Ward (1992, p.262); Kallio (2005, pp.30, 31, 62-63); Hume (2009b, p.29). Video footage: Restoring the Mauritian ecosystem (http://www.nhm.ac.uk/nature-online/science-of-natural-history/researching-the-dodo/restoring-the-mauritian-ecosystem/index.html [accessed 12 August 2011]). 3-D image: http://www.museumsecrets.tv/swf_interactive/dodo.swf [accessed 3 My 2012]
NHM Picture Library Images 2474, 33785-33788



A.729: *left* (*top* and *bottom*) NHM Picture Library, © Natural History Museum; *right*: © Jolyon C. Parish).



A.729: skull and mandible (NHM Picture Library, © Natural History Museum).

A.838 right first metatarsal. Presented by James E. M. Brown[19] in 1903. The bone is described as a first phalanx of the hallux on the accompanying label. Mentioned by Woodward (1904; see above). Woodward (1904) recorded the donation: "The first phalangeal bone of the hallux of *Didus ineptus* from Mt. Corps de Garde, Mauritius. Presented by James E. M. Browne, [*sic*] Esq., M.B." (p.148).

A.896 proximal end of right mandibular ramus (mottled). Mare aux Songes. Pleistocene. Purchased 1910.

A.897 pelvis and sacrum (damaged caudally). Mare aux Songes. Pleistocene. Purchased 1910.

A.898 two left scapulae (mottled). Mare aux Songes. Pleistocene. Purchased 1910.

A.899 right and left coracoids (right one mottled, part of a scapulocoracoid). Mare aux Songes. Pleistocene. Purchased 1910.

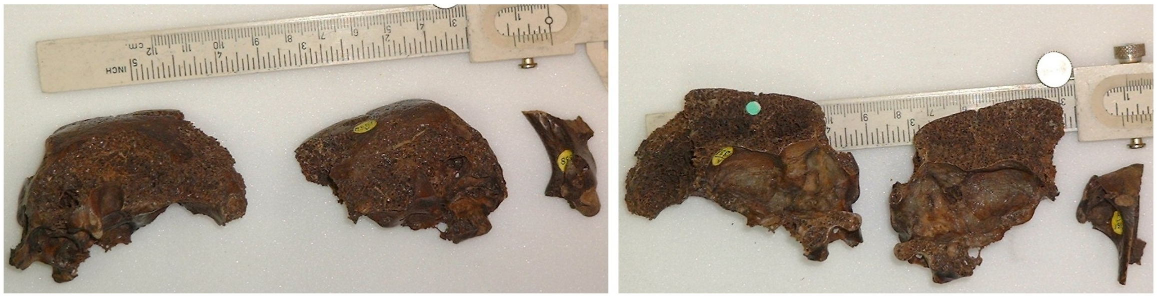
A.900 right and left femora (right one mottled). Mare aux Songes. Pleistocene. Purchased 1910.

A.901 right and left tibiotarsi (both mottled). Mare aux Songes. Pleistocene. Purchased 1910. Accompanying label:

R + L tibio-tarsi
Didus ineptus, Linn
Form$^{n.}$ Pleistocene
Loc$^{n.}$ Mare aux Songes,
Mauritius.
Purch$^{\underline{d}}$ 1910
Brit. Mus. Geol. Dept. *A901*

A.902 right and left tarsometatarsi (right one has damage to lateral and medial trochleae). Mare aux Songes. Purchased 1910.

A.1338 cranium (slightly damaged), sectioned longitudinally so as in two halves. Peat. Mare aux Songes. Specimen *l.* of Salvadori (1893). Medial half of proximal end of right humerus (fragmentary, humerus has been sectioned longitudinally). Bag of very small bone fragments and dirt. Exchanged with Zoology Dept. Right half of cranium figured: Owen (1867, pl.xxiii, fig.1).



A.1338 (© Jolyon C. Parish).

A.1339 premaxilla and maxilla (right maxilla and right half of longitudinally sectioned premaxilla), left half of longitudinally sectioned nasal process of premaxilla, distal ~half of left ramus of mandible, right half of mandibular symphysis. Peat, Mare aux Songes. Exchanged with Zoology Dept. Figured: Owen (1867, pl.xxiii, fig.1)

A.1340 sternum (slightly damaged cranially and on left side; sectioned transversely). Peat, Mare aux Songes. Exchanged with Zoology Dept. Specimen *s.* of Salvadori (1893). Figured: Owen (1867, pl.xxiii, fig.4).

A.1341 left scapulocoracoid with proximal clavicle attached.

A.1342 left femur (sectioned longitudinally into cranial and caudal halves). Peat, Mare aux Songes. Exchanged with Zoology Dept. Figured: Owen (1867, pl.xxiii, figs.6, 7)

A.1343 right tarsometatarsus (sectioned longitudinally into cranial and caudal halves). Peat, Mare aux Songes. Exchanged with Zoology Dept. Figured: Owen (1867, pl.xxiii, fig.10)

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[19] James Edward Myles Brown M.B., Ch.B. 1903. Brown was born in Mauritius in 1875. He matriculated at the Royal College of Mauritius in 1894 and in 1901 was living as a medical student in Edinburgh.

A.1344 right humerus (lack proximal end; sectioned longitudinally into lateral and medial halves)

A.1345 two pelves (damaged caudally). Peat, Mare aux Songes. Exchanged with Zoology Dept. Figured: Janoo (1997, pl.26).

A.1346 two right and one left femora. Mare aux Songes. Exchanged with Zoology Dept.

A.1347 right tibiotarsus (damaged proximocranially), left tibiotarsus, left tibiotarsus (damaged proximocranially), distal ~two-thirds of left tibiotarsus. Peat, Mare-aux-Songes. Exchanged with Zoology Dept.

A.1348 left tarsometatarsus. Peat, Mare aux Songes. Exchanged with Zoology Dept.

A.1349 symphysis and distal ~half of left mandibular ramus, distal ~half of right ramus (broken off, but tied to left ramus), Peat, Mare aux Songes. Exchanged with Zoology Dept.

A.1350 mandible fragments: symphysis and distal ~halves of right and left rami, symphysis and distal half of left ramus, symphysis and distal ~half of left ramus, proximal end of right ramus, two proximal ends of left ramus; nasal process of premaxilla (damaged distally). Peat, Mare aux Songes. Exchanged with Zoology Dept. Accompanying label:

Portions of mandibles
Didus ineptus
Form$^{n.}$ Peat
Loc$^{n.}$ La Mare-aux-Songes,
Mauritius.
Exch. with Zool Dept.
Brit. Mus. Geol. Dept. *A.1350*

A.1351 damaged notarium, right scapulocoracoid, right scapula (lacks distal extremity), clavicle, right coracoid (a scapulocoracoid lacking the scapula) with fused clavicle, right coracoid (a scapulocoracoid lacking the scapula), left coracoid, distal ~two-thirds of right humerus. Peat, Mare aux Songes. Exchanged with Zoology Dept. Figured: Janoo (1997, pl.18, figs.A, B).

A.1352 (76.1.28.83). Right coracoid and proximal part of right scapula (tied together, form a scapulocoracoid), shaft of left ulna, six pedal phalanges, left first metatarsal. Mare aux Songes. Exchanged with Zoology Dept. "T[ransit] of V[enus] Exp[edition]"

A.1355 right tibiotarsus (sectioned longitudinally into cranial and caudal halves). Peat, Mare aux Songes. Exch. Zool. Dept. Label in box gives catalogue no. A.1855. Figured: Owen (1867, pl.xxiii, figs.8, 9).

A.1575 fragmentary pelvis (damaged cranially and caudally), plus two fragments. Mare aux Songes, Holocene. Presented by Lt. Col. C. Turner Clark,[20] 1922 (George Clark Coll.).

A.1576 mandible fragments: symphysis and distal end of left ramus, proximal end of right ramus, proximal end of left ramus. Mare aux Songes. Holocene. Presented by Lt. Col. C. Turner Clark, 1922.

A.1577 right and left femora (damaged slightly distally). Mare aux Songes. Holocene. Presented by Lt. Col. C. Turner Clark, 1922.

A.1578 fragmentary cranial portion of sternum, plus sternum fragments. Mare aux Songes, Holocene. Presented by Lt. Col. C. Turner Clark, 1922 (George Clark Coll.).

A.1579 fragment of caudal end of sternum. Mare aux Songes. Holocene. Presented by Lt. Col. C. Turner Clark, 1922.

A.1580 right tibiotarsus (slightly damaged proximocranially), left tibiotarsus. Mare aux Songes. Holocene. Presented by Lt. Col. C. Turner Clark, 1922. Handwritten label:

Dodo Bones
vide geo. Clark

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[20] Charles Turner Clark (1868-1941). F.Z.S. Lieutenant-Colonel (later Major) of the Oxfordshire & Buckinghamshire Light Infantry. He was born in South Kensington, London, and was the son of Charles Clark. In 1910 and 1911 he lived at 90 The Mall, Carisbrooke Road (Alexandra Terrace), Newport, Isle of Wight. In 1919 he lived at Hillcrest, St. Augustine's-avenue, South Croydon. It is *possible* that Charles was descended from George Clark's brother, Joseph Clark (1795-1872), who married Eliza Turner. They had at least one son, Joseph Turner Clark (b. 1822), but no further details have been forthcoming as yet.

Phil Trans Pl I
1869 p. 331.

A.1581 right and left tarsometatarsi. Mare aux Songes. Holocene. Presented by Lt. Col. C. Turner Clark, 1922. George Clark Collection.

A.1801 left femur (damaged distally) (black). Presented by G. Taylor Fox, 1929.

A.1840 mandible (broken into: symphysis and whole left ramus, middle portion of right ramus, proximal end of right ramus), right femur, right tibiotarsus. Rothschild Bequest, Zoological Museum, Tring. “Mauritius 1873.” Five vertebrae (7th-8th?, 8th-9th?, 8th-10th?, 11th, 12th), notarium (damaged), two fragments of long sternal ribs, proximal ~half of left scapula, omal end of left coracoid, left scapulocoracoid and clavicle, distal ~half of left ulna, two radii, two left fibulae, bone fragment. Other bones in same box but not labelled as 1840: short sternal rib (1st?), right scapula, portion of right caudal acetabular and postacetabular region of pelvis, left acetabular region of pelvis, fragment of ilium, three small bone fragments.[21] Figured: Janoo (1997, pl.7, fig.F).

A.3224 two fragments of shaft of long bone. Found by Philip Burnard Ayres in Mauritius in 1860. In a letter to his brother Alfred, dated 2nd November 1860, Edward Newton wrote: “I am not despairing yet about Dodo’s bones; I saw some that were found in a cavern last week. The finder, Dr. Ayres, assures me that they are those of the Rodriguez bird, and not the Mauritian Dodo: he intends to give them to the British Museum. We are to have a regular search in the cavern the first opportunity. What is curious, is that with them he found Deers’ teeth, as well as Reptiles’, and some other Bird’s bones, which latter were so brittle he could not preserve them” (quoted in Sclater 1861, p.118). Ayres exhibited the remains, which had been found in “one of the caverns of the Rivière Noire”, at the meeting of the RSASM on 8th November 1860 (*TRSASM*, 1861, New Series, 2 (1), p.157). Alfred Newton informed the ZSL in a meeting of 11th December 1860 that Ayres had discovered bones supposed to be those of the dodo and would send them to the BM (Newton 1860). The bones were sent to Richard Owen at the BM, although he apparently confused them with *Pezophaps* bones sent around the same time by Louis Bouton (Hume *et al*. 2009; see Parish 2013, p.365). Edward Newton later recalled that they were found in a cave at Petite Rivière and that “Ayres afterwards told me that Owen had pronounced one at least to be a Dodo’s” (letter to Alfred Newton, 3rd January 1866, 24/3, p.228; quoted in Hume *et al*. 2009, p.33)”. These bones are indeed in the NHM collections: two portions of tibiotarsus (A.3224); the accompanying label reads: ““Portion of tibia (?) *Pezophaps* sp. Pleistocene Port Louis, Mauritius Rereg. From 35887 Presd by Dr Ayres, 1861” (see Parish 2013, fig.5.41). The online NHM Palaeontology catalogue entry reads: “Long bone diaphysis, probably tibia [*sic*] or femur” “Petite Riviere; Mauritius” (29/10/2009: http://www.nhm.ac.uk/research-curation/scientific-resources/collections/palaeontological-collections/palaeontology-specimen-database/index.php?action=listing&Keyword=raphus&RecordsPerPage=10). Their colour suggests that they were not from Mare aux Songes; the locality is given as “Port Louis” and the size seems to fit with an identification as *Raphus*. Furthermore, Ayres never visited Rodrigues (Anthony Cheke, pers. comm., 2nd December 2009). In 1860 Ayres presented “A small collection of Mammalian and Reptilian Remains, from a bone cave in the Mauritius” (Waterhouse 1861, p.20). In a letter to Joseph Dalton Hooker, dated Mauritius, 15th April 1867,[22] Henry Barkly mentioned a “determination of semi fossilized Deer’s bones by Professor Owen from a Cave near Black River sent to him with some remains of the Tortoise by the late Dr Ayres under the impression that they might be those of the Dodo. This was I believe in 1860 or 1861.

Mr Edward Newton can give either yourself or Dr Owen full details as I called his attention to the subject” (quoted in Darwin *et al*. 2005, p.264). Figured: Parish (2013, fig.541).

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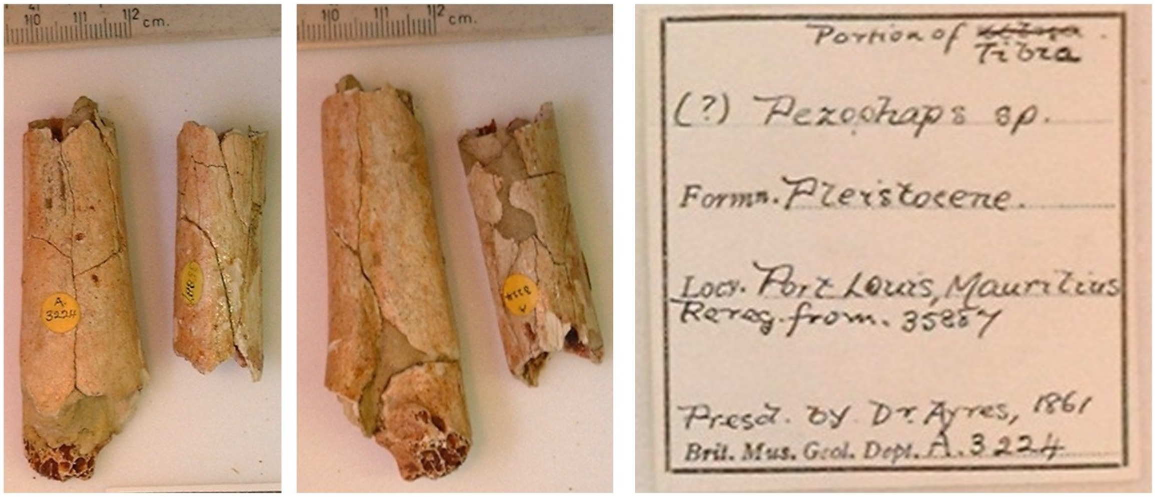
[21] Bones in the Museum of New Zealand (NMNZ S.38985) also bear the number ‘1840’, in the same style as NHMUK A.1840.

[22] Letter from Henry Barkly to Joseph Dalton Hooker, 15th April 1867. Enclosed in a letter from Hooker to Charles Darwin, 17th May 1867, CUL DAR Kew 102: 163-4; DC 188 (125).



Portion of ~~[illegible]~~ Tibia

(?) Pezophaps sp.

Formn. Pleistocene.

Locy. Port Louis, Mauritius
Rereg. from. 35887

Presd. by Dr. Ayres, 1861
Brit. Mus. Geol. Dept. A.3224

A.3224 (© Jolyon C. Parish).

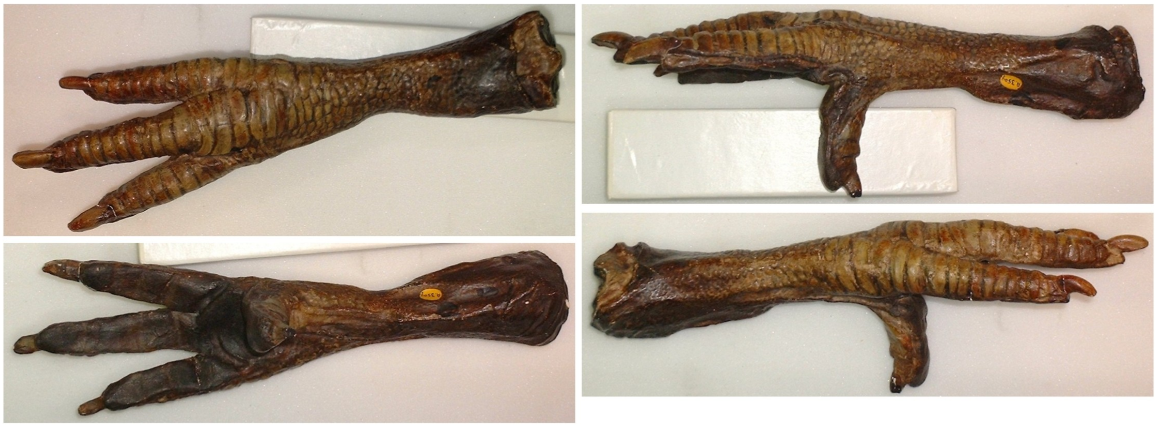
A.3225 left tarsometatarsus. Holocene. Reregistered from 41992. Transferred from Zoology Dept.

A.3226 left tibiotarsus. Pleistocene. Locality unknown. Smaller than A.72g and A.72h. Cat. Foss. Birds 1891, p.129 under no.41991 reregistered. Transferred from Zoology Dept. 1870.

A.3302 see S1988.50.1

A.3379 symphysis and distal ~half of right mandibular ramus (10133/1), proximal ~half of right mandibular ramus (10135/19), three cervicals (5th-8th?, 6th-8th?, 6th-8th?), right scapula (10119/6), fragmentary pelvis (10129/1; very damaged), right femur (slightly damaged proximally and distally), right tibiotarsus (damaged proximocranially), left tibiotarsus (no catalogue number label except 10117 L; damaged proximocranially), left femur, right tarsometatarsus (pale coloured- cream to pale brown-grey), left tarsometatarsus. Plus one vertebra (10131/55) ?not dodo. Sub-recent. Presented by Mauritius Institute May 1954.

A.3509 coloured plaster cast of the Tradescant head (made prior to dissection) and coloured plaster cast of the BM foot (the original previously preserved in NHMUK Zoological Dept, now lost).[23] Registered 1959 (Sandra Chapman, pers. comm., 6th December 2012). Cast of head figured: Kallio (2005, p.64). NHM Picture Library Image 33794, 33795. Cast of foot figured: Kallio (2005, p.24-25, 67); Parish (2013, fig.5.16). NHM Picture Library Images 33790-33793



A.3509, coloured cast of the BM foot (© Jolyon C. Parish).

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[23] Janoo (1997) also listed a tarsometatarsus. This is probably an error, as there is no tarsometatarsus catalogued under A.3509 (pers. obs.; Sandra Chapman, pers. comm., 7th December 2012).

A.3622 sternum (slightly damaged). Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.[24] Figured: Hume & Steel (2013, fig.5C).

A.3623 pelvis (damaged at cranial and caudal ends). Mare aux Songes. Holocene. Collected by G. Clark, and bequeathed to the Hastings Museum by Miss E. E. Clark (*i.e.* Edith Elizabeth Clark – see below: Ralfe Whistler's Collection). Presented by Hastings Museum, 1962.

A.3624 pelvis (damaged at cranial and caudal ends). Mare aux Songes. Holocene. Collected by G. Clark, and bequeathed to the Hastings Museum by Miss E. E. Clark. Presented by Hastings Museum, 1962.

A.3625 left femur. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3626 right femur. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3627 right tibiotarsus. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3628 left tibiotarsus. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3629 left tibiotarsus (slight damage to proximomedial corner). Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3630 left tibiotarsus. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3631 left tibiotarsus. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3632 left tarsometatarsus (damaged proximocranially). Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

A.3633 right tarsometatarsus. Holocene. Mare aux Songes. Collected by G. Clark. Presented by Hastings Museum, 1962. Previously on exhibition, Succession of Life.

A.3634 right tarsometatarsus. Mare aux Songes. Holocene. Collected by G. Clark. Presented by Hastings Museum, 1962.

41990 right femur. Locality unknown. This specimen is larger than A.72e and A.72f. Transferred from Zoological Dept., 1870 (Lydekker 1891, p.129).

A.9040 mounted composite skeleton (Owen's Skeleton). Composed of bones from Mare aux Songes sent to Richard Owen, mostly by George Clark, assembled by Mr. E. Gerard, jun. [presumably Edward Gerrard (1811-1910), London taxidermist] (Owen 1871b). According to Günther (1912), "the skeleton of the Dodo exhibited in the gallery" was obtained in 1866 (p.20). It was constructed with reference to Savery-BM (Van Wissen 1995). Owen (1871c) noted that: "Accessions of specimens of the bones of the Dodo (*Didus ineptus*, L.), have afforded the means of recomposing the entire skeleton of that extinct bird of the Island of Mauritius; a well articulated specimen is now exhibited in the Gallery of Ornithology" (p.26). The cranium is fragmentary, and the 14th, 15th and 18th vertebrae are inaccurate interpolations. The ribs are also incomplete and the pedal phalanges are probably either casts and/or reconstructions. The tarsometatarsi and pedal digits have been transposed (*i.e.* the left is mounted on the right leg, and vice versa).[25] Probably specimen *f.* of Salvadori (1893), erroneously stated to be figured by Strickland & Melville (1848, pls. viii, ix, x, xii, xiii). Woodward (1911) recorded: "Aves (Gallery 2).–A plaster cast of the manus of *Didus ineptus* (original in the Zoological Museum, Cambridge) has been prepared for addition to the exhibited skeleton" (p.168). The skeleton was provided with a catalogue number in 2012 (Sandra Chapman, pers. comm., 7th December 2012). Currently on display in the Cadogan Gallery. It was formerly displayed in the Main Hall, just north of Waterhouse Way, where the information above the display case read:

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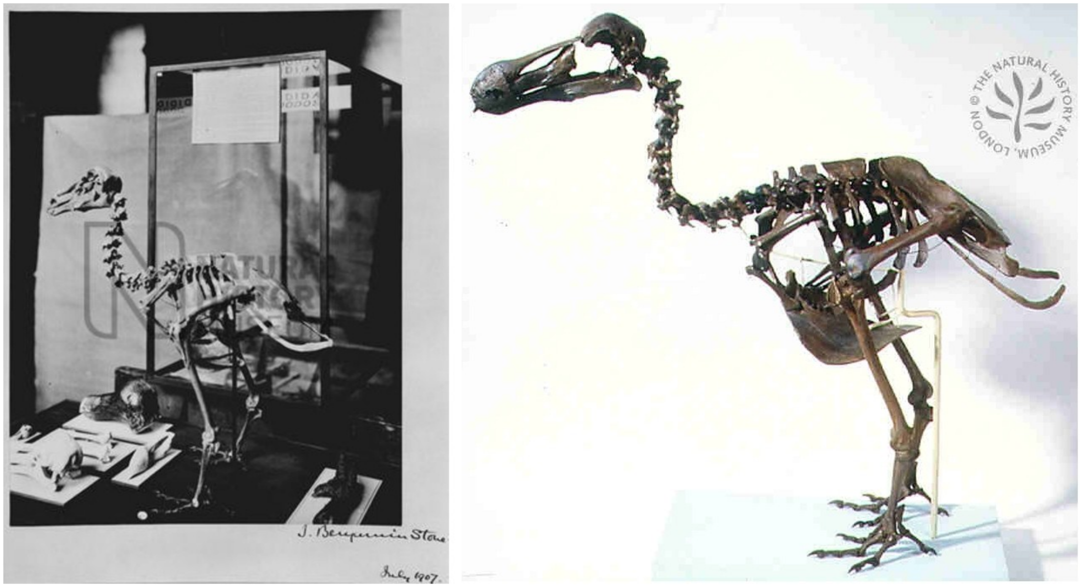
[24] 34 bones were bequeathed to Hastings Museum in 1923 and of those thirteen were transferred to the BMNH in 1962. The bones were described as having been found by George Clark "in a boggy ravine known as La Mare aux Songes in the island of Mauritius." Moa bones were also transferred, and it is possible that the original 34 bones were not fully identified. Pamphlets and letters were also donated to the BMNH by Hastings Museum in 1963 (Cathy Walling, pers. comm., 19th June 2014). See the entry for Hastings Museum (below).

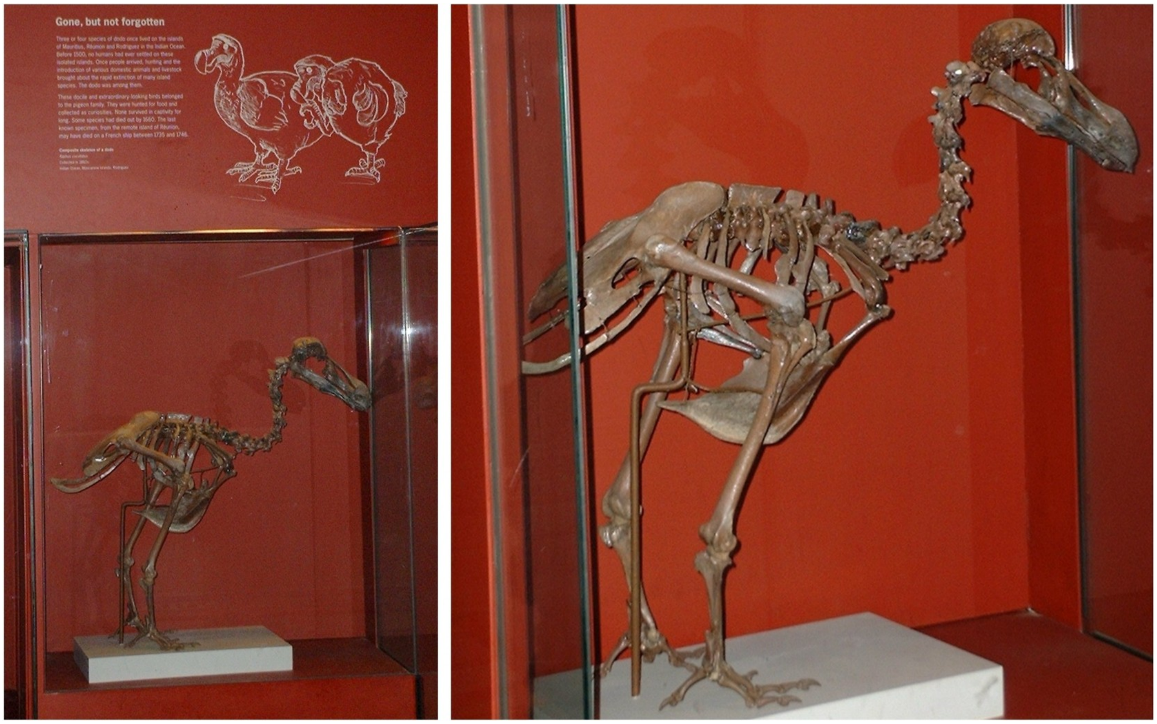
[25] The skeleton was briefly removed from display and is currently on display facing to the left. The pedal phalanges of digits II and IV have been transposed and are now in their correct positions, but the tarsometatarsi are still on the wrong sides (pers. obs. from photographs).

> Gone, but not forgotten
>
> Three or four species of dodo once lived on the islands of Mauritius, Réunion and Rodriguez in the Indian Ocean. Before 1500, no humans had ever settled on these isolated islands. Once people arrived, hunting and the introduction of various domestic animals and livestock brought about the rapid extinction of many island species. The dodo was among them.
>
> These docile and extraordinary-looking birds belonged to the pigeon family. They were hunted for food and collected as curiosities. None survived in captivity for long. Some species had died out by 1660. The last known specimen, from the remote island of Réunion, may have died on a French ship between 1735 and 1746.
>
> **Composite skeleton of a dodo**
> *Raphus cucullatus*
> Collected in 1860s
> Indian Ocean, Mascarene Islands, Rodriguez

Figured: Owen (1871b, pls.lxiv, lxv) [reproduced in: Owen (1879, pls.i, ii); Hachisuka (1953, pls.viii [edited], ix); Fuller (2002, pp.126, 127); Fuller (2003, p.38); Grihault (2005, p.79); Hume (2012a, p.147 *partim*, fig.5 [incorrectly labelled as '1866']); Parish (2013, fig.5.42)]; Ogilvie-Grant (1905, pl.ii, fig.2); Lankester (1905, fig.17); Pycraft (1931, p.699 [reproduced: Parish (2013, fig.5.45)]); Fisher & Peterson (1964, p.273); Kallio (2005, pp.19, 54, 55); Parker (2007, p.65 [Harri Kallio]). NHM Picture Library Images 22800, 33789



A.9040: *left*: photograph by John Benjamin Stone, July 1907 (NHM Archives, London: PH/128/7; see Parish 2013, p.205); *right*: the skeleton today (NHM Picture Library, © Natural History Museum).



A.9040 on display (© Jolyon C. Parish).

S1988.50.1 (registration number). Fairly complete composite skeleton in the Department of Birds at Tring, Hertfordshire, composed of bones from Mare aux Songes. The mount is by Deyrolle of Paris (Joanne Cooper, pers. comm., 3rd December 2012) and is stamped with their name on the upright of the armature (*ibid*., 6th December 2012). At the General Meeting of the *Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg*, held on 16th January 1907, C. Gottsche remarked on a photograph of a skeleton from the firm Umlauff[26] recently sold to Tring. This suggests that Umlauff purchased the skeleton from Deyrolle. The issue of *Zlatá Praha* for 21st February 1924 mentions presence of the skeleton of the dodo at Tring in 1908. The skeleton was formerly part of the Rothschild Collection and was received by the NHMUK in 1937 where it was formerly registered in the Palaeontology Department (as A.3302), but transferred back to Tring sometime prior to 1989 (Joanne Cooper, pers. comm., 19th May 2008). Listed as being in the Tring gallery (Lambrecht 1933; Hachisuka 1953; Knox & Walters 1994). Knox & Walters (1994) mentioned it as being on display in the Tring Museum, although it currently is not (Joanne Cooper, pers. comm., 29th May 2008). However, this skeleton was exhibited, along with the two dodo reconstructions, at Tring as part of the small temporary exhibition "The Secret World of Museum Science", held from 16th May to 6th November 2011 (http://www.culture24.org.uk/science+%26+nature/art356615 http://www.nhm.ac.uk/natureplus/blogs/whats-new/2011/05/16/the-secret-world-of-museum-science-exhibition-opens-in-tring accessed: 24 May 2011).[27] See also Triebold Paleontology, Inc. (below). Figured: Kallio (2005, endpapers, pp.28, 29). NHM Picture Library Images 33781-33784

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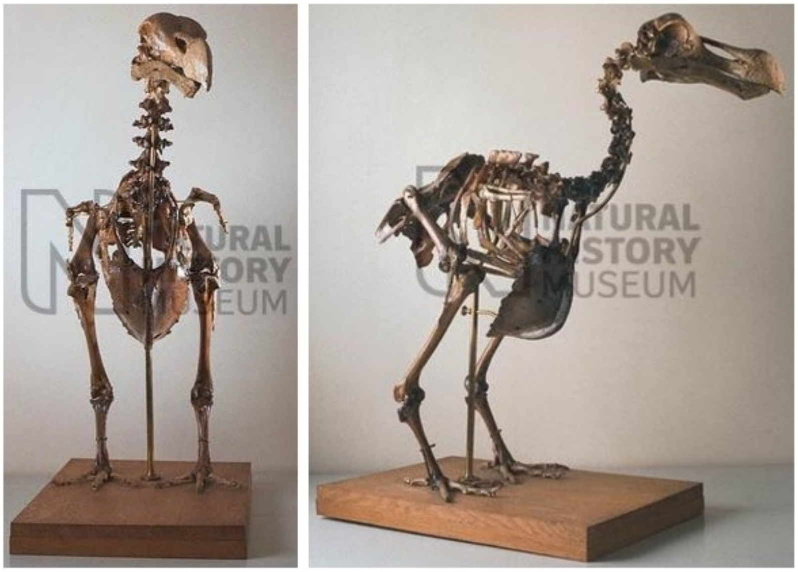
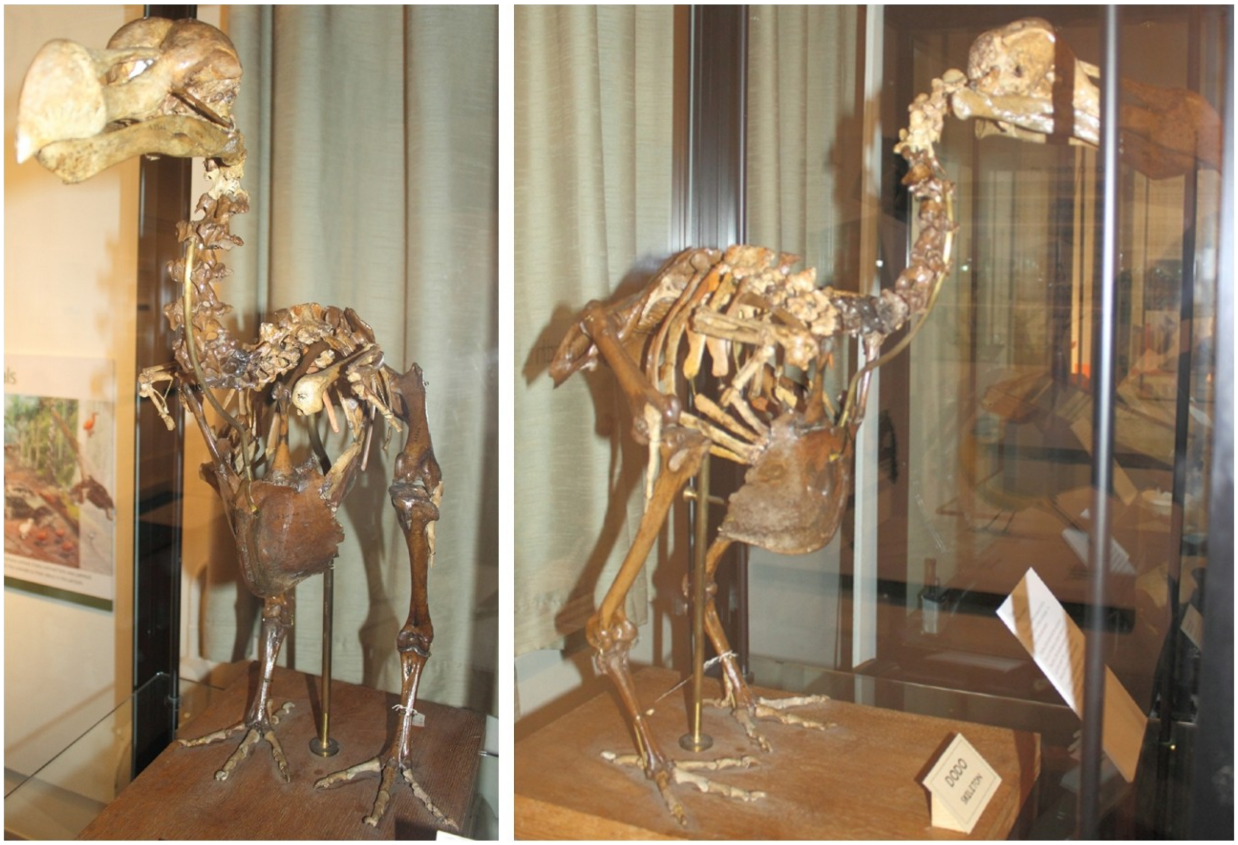
[26] Johannes Umlauff (1874-1951). Taxidermist. The Umlauff family were natural history dealers in Hamburg: Johann Friedrich Gustav Umlauff (1833-1889) from 1868, his son Johannes Umlauff from 1910, and Gustav Umlauff from 1929 (Robert Lindner, pers. comm., 18th November 2010). The Umlauff firm ran from 1868-1974.

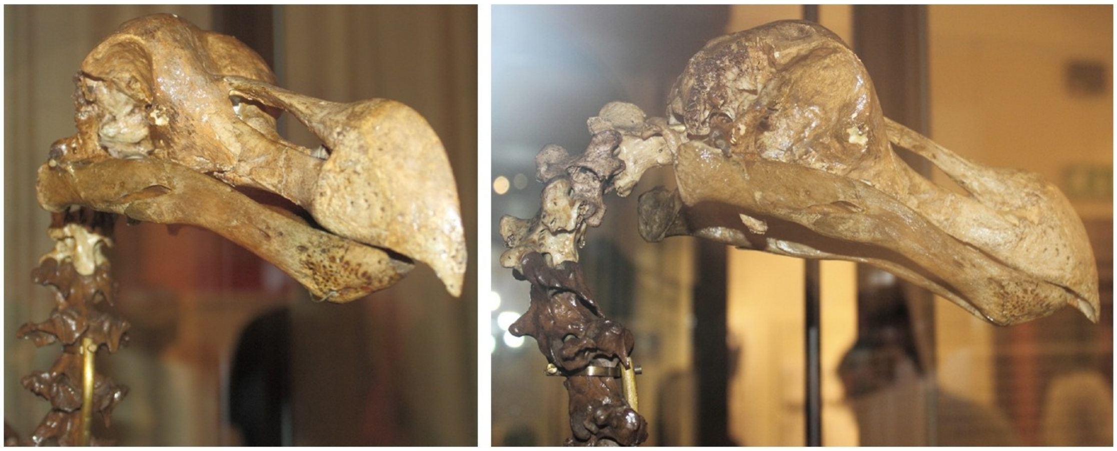
[27] The latter source includes a photograph of Owen's dodo skeleton (A.9040), which is not at Tring.



S1988.50.1 (NHM Picture Library, © Natural History Museum).



S1988.50.1 in the temporary exhibition “The Secret World of Museum Science” (© R. Nye, 2011).



S1988.50.1 temporary exhibition "The Secret World of Museum Science": skull (© R. Nye, 2011).

Two casts of the Tradescant head, in the Department of Birds at Tring (one is probably a cast of a cast, due to its lack of detail: Joanne Cooper, pers. comm., 19th May 2008). Knox & Walters (1994) listed: "Two plaster casts each of the head and the foot (one cast broken), from the Ashmolean, Oxford. Stored in the skeleton collection" (p.134).[28] No registration number or known provenance (Joanne Cooper, *op. cit.*). The NHM possesses three casts of the head in total: the two at Tring mentioned above and A.3509. According to Gray (1839), a cast of the Tradescant head was presented by P. Duncan, and Anon. (1844) mentions that a cast of the head was presented by John Duncan. Sharpe (1906) records that at cast of the Tradescant head was presented by Mantell (presumably Gideon Algernon Mantell 1790-1852). Owen & Broderip (1866) mention a cast of the Tradescant head as being in the BM, as does Lambrecht (1933). Three casts of the Tradescant head (specimens *b*, *c*, *d.*) were listed by Salvadori (1893). Janoo (1997) listed BMNH S177R (cast of Oxford head); however no such number is recorded at Tring (Joanne Cooper, pers. comm., 3rd December 2012). A cast is shown in a photograph by J. G. Ellis from 1905 (NHM Archives: PH/173/755) and in a photograph by J. Benjamin Stone from 1907 (NHM Archives: PH/128/7). An uncoloured cast is figured by Dissanayake (2004, p.165); NHM Picture Library Image 43187.

Two casts of the BM foot, in the Department of Birds at Tring (one is broken and appears to be a cast of a cast: Joanne Cooper, pers. comm., 19th May 2008). No registration number or known provenance (*ibid*.). See also above (casts of the Tradescant head) and A.3509.

Specimens figured by Hume *et al*. (2014a, fig.5) (no catalogue numbers given): two left femora (one black, lacking lateral condyle), one left and one right tibiotarsus, four left tibiotarsi.

Unlabelled:

- Box containing: proximal fragment of femur (head of femur and adjacent area) and two fragments of the middle portion of left mandibular ramus.
- Left tarsometatarsus, nine long vertebral ribs (no uncinate processes). Labels read: "Madagascar. Dr P. M.'s Coll."; "Evidently a mistake somewhere. This is Dodo."
- Boxes containing: fragmentary synsacra: ● three specimens; ● three specimens; ● four specimens; ● five specimens (very fragmentary); ● two specimens and seven fragments of synsacra.
- Box containing: very fragmentary pelvis (including cranial part of synsacrum and left acetabular region), one right antitrochanter, two left antitrochanters, eight fragments of pelvis and bone fragments.

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[28] Presumably Knox and Walters (1994) are mistaken in stating that the casts of the foot are from the Ashmolean: they are from the BM specimen.

- Boxes containing: fragments of pelvis (acetabular region): ● one right side, three left side, ventral part of right acetabular region; ● three right side, one left side, ventral part of left acetabular region; ● three right side, two left side; ● two right side, one left side, two fragments of ventral part of right acetabular region, ventral part of left acetabular region; ● two right side, three left side; ● three right side, three left side.
- Box containing three seeds (in same drawer as dodo specimens).

- Julian Hume used a transversely sectioned proximal end of a right humerus (BMNHmau1: Mare aux Songes) from the NHM in his taphonomic studies. Figured: Hume (2005, fig.5a thin section; figs.6a, b SEM).
- Cast of the skull and mandible of Owen's dodo skeleton (A.9040). Exhibited in the "Images of Nature" exhibition, which opened on 21st January 2011.

Cast of the skull and mandible of Owen's dodo skeleton (A.9040) (© Chris Freeland, 27th October 2011).

- Hume & Steel (2013) also list as unregistered: right humerus, right ulna, right radius, three right carpometacarpi, distal end of left carpometacarpus.

Mentioned in literature, but now apparently lost:

- Two casts of the foot bones of the Tradescant specimen (Knox & Walters 1994).[1] Specimen *i.* of Salvadori (1893): "casts of the bones of the foot in the University Museum of Oxford" (p.635).
- Cast of the Copenhagen skull. Specimen *g.* of Salvadori (1893). Mentioned by Lambrecht (1933). The cast is apparently shown in a photograph by J. Benjamin Stone from 1907 (NHM Archives: PH/128/7).
- Cast of the Prague beak. Specimen *h.* of Salvadori (1893). Mentioned by Lambrecht (1933). The cast is shown in a photograph by J. Benjamin Stone from 1907 (NHM Archives: PH/128/7).
- Right foot. Specimen *e.* of Salvadori (1893). See Parish (2013, pp.199-210).

In a letter to Strickland, dated 8th June 1847 (D-217), Melville informed him that Gray had requested Strickland to give permission to take the foot of the dodo to Oxford on Saturday for the meeting of the BAAS (Rookmaaker 2010).

In August 1847 Melville reported to Strickland (D-219) that he had had a cast of the foot of the dodo made and that when Gray returned he would get a drawing of the foot made (Rookmaaker 2010).

Exchanges with other museums:

- KU 73207 was obtained by Larry Martin in an exchange with the BM around 1978 (see below).
- USNM V 22554-22566 were purchased from Richard L. Casanova (Paleontological Research Laboratory). The accompanying label reads: "Port Louis, Mauritius from British Museum." (see below).

Pezophaps solitaria

A.133 left humerus (♂; damaged proximally and distally). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133a proximal half of right humerus (♀). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133a′ right tibiotarsus (♂; damaged proximomedially). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133a″ distal ~half of right tarsometatarsus (♀). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128). (A.133a88).

A.133a‴ left tarsometatarsus (♂). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128). [Label accompanying A.133 reads: "For Original Label See "Collection Notes" No.1."]

A.133b 3rd cervical vertebra. Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133c middle cervical vertebra. Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133d posterior cervical vertebra (damaged). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

A.133e right coracoid (♀). Cavern. Transit of Venus Collection. (Lydekker 1891, p.128).

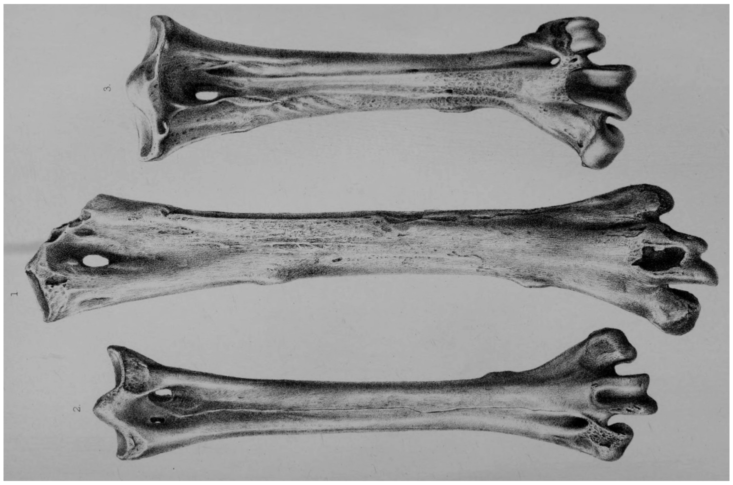
A.1356 right tibiotarsus (♂). Transferred from Zoology Dept. ZSL specimen. "1310.a." No.11 of Strickland (1853); Specimen *l.* of Salvadori (1893). Assigned to *Didus ineptus* by Bartlett (1851). Bartlett (1851) remarked that "its agreement with the foot [of the dodo] in the British Museum [...] its size and proportions, as compared with metatarsal in question [...] fit each other so perfectly, that one might think they belonged to the same individual" (p.282). Strickland (1853) thought that this was possibly from the same individual as the Andersonian Museum left tibiotarsus, due to its very similar size and form. See Parish (2013, pp.337, 379n60). Figured: Strickland (1853, pl.55, fig.4 [reproduced: Parish (2013, fig.5.39)]).

A.1357 proximal part of right humerus (♂). Cavern. Transferred from Zoology Dept. ZSL specimen. No.7 of Strickland (1853); Specimen *f.* of Salvadori (1893). Assigned to *Didus ineptus* by Bartlett (1851). See Parish (2013, pp.337, 379n60). Figured: Strickland (1853, pl.55, figs.1, 2 [reproduced: Parish (2013, fig.5.39)]).

A.1358 distal part of right femur (♂). Cavern. Transferred from Zoology Dept. ZSL specimen. No.9 of Strickland (1853); Specimen *k.* of Salvadori (1893). The specimen has a rugose surface suggesting it was from "A very aged individual" (Strickland 1853, p.193). Shaft transverse diameter 10 lines (21.2mm); craniocaudal diameter 8 lines (16.9mm), thickness of shaft wall 1¼ lines (2.6mm) (Strickland 1853). See Parish (2013, p.379n60). Figured: Strickland (1853, pl.55, fig.3 [reproduced: Parish (2013, fig.5.39)]).

A.1359 right femur (♀; slight damage proximally and distally). Transferred from Zoology Dept. "1310.e.". ZSL specimen. No.16 of Strickland (1853). See Parish (2013, pp.337, 379n60).

A.1360 right tarsometarsus (♀). Cavern. Transferred from Zoology Dept. ZSL specimen. No.18 of Strickland (1853); Specimen *o.* of Salvadori (1893). "4". Assigned to *Didus solitairius* by Bartlett (1851). See Parish (2013, pp.337, 379n60). Figured: Bartlett (1851, pl.xlv, fig.2).



Top: left dodo tarsometatarsus, *middle*: left solitaire tarsometatarsus from the Andersonian Museum collection (no.12 of Strickland 1853), *bottom*: right ♀ solitaire tarsometatarsus (A.1360) (Bartlett 1851, pl.xlv).

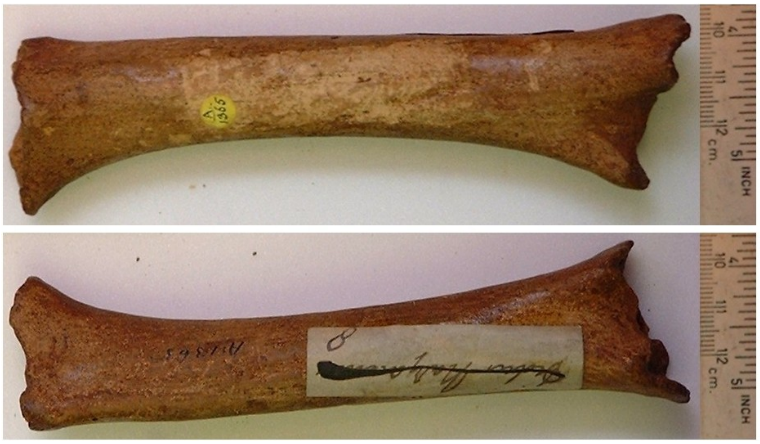
A.1361 plaster cast of left tibiotarsus (♂). Transferred from Zoology Dept. Original was part of the Andersonian Museum collection. Specimen *m.* of Salvadori (1893).[29]

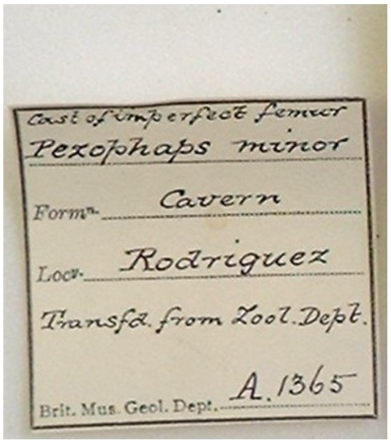
A.1362 plaster cast of left tarsometatarsus (♂). Transferred from Zoology Dept. Original was part of the Andersonian Museum collection. Specimen *n.* of Salvadori (1893).[2]

A.1363 plaster cast of right femur (♀; "*Pezophaps minor*"). Transferred from Zoology Dept. Original was part of the Andersonian Museum collection. Specimen *h.* of Salvadori (1893).

A.1364 cast of left femur (♀; damaged proximally and distally). Transferred from Zoology Dept. "1310. d.". Original was part of the Andersonian Museum collection.

A.1365 cast of imperfect (lacking proximal and distal ends) ?right femur, ♀ [*Pezpohaps minor*]. Original from cavern. Transferred from Zoology Dept. ?Specimen *i.* of Salvadori (1893).




Cast of imperfect femur
Pezophaps minor
Formⁿ. Cavern
Loc. Rodriguez
Transfd. from Zool. Dept.
Brit. Mus. Geol. Dept. A.1365

A.1365 (© Jolyon C. Parish).

A.1366 cast of proximal end of right tarsometatarsus, ♀ [*Pezophaps minor*]. Original from cavern. Transferred from Zoology Dept. "Zoological Society 9".

A.1367 (68.12.28.2) Left humerus (♂; damaged proximally and distally). Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1368 (68.12.28.2) Femora: right and left (♂; right one damaged distally and partly split (glued), both show patternation on cranial face of midshaft), right (♀). Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1369 tibiotarsi: left (♂), right (♀), right (damage to distal end and to shaft; 68.12.28.2) Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1370 tarsometatarsi: right and left (68.12-28.2; ♂), left (♀; damaged distally). Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1371 (68.12.28.2) Synsacrum (damaged), right acetabular region. Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1372 (68.12.28.2) Left ulna (♂), radius (♂), ?distal end of radius (♂, with some exostotic development), head of right coracoid (damaged), exostotic ?sternal rib, fibula, four pedal phalanges (three ?♂ (marked "D R. i. 1" "R.[?].1" "2. m. 1.") and one ?♀). Cavern. Transferred from Zoology Dept. Presented by E. Newton.

A.1373 (76.1.28.3; ♀[30]). Cranium and beak (lacrimals detached), pair of quadrates, mandible, five right vertebral ribs (two with uncinate processes), three left vertebral ribs (one with uncinate process), four rib fragments, two sternal ribs, pair of scapulae (right one proximal end only), pair of coracoids, sternum, pair of humeri, pair of ulnae, radius, pair of carpometacarpi, fragment of pubis, pair of femora, pair of tibiotarsi, pair of fibulae, pair of tarsometatarsi, pedal phalanx. Cavern. Transferred from Zoology Dept. Transit of Venus Collection. MB. [Accompanying note reads: "See other specimens of same regd. No. in box beside. 9/9/59 L.M.P."] Figured: Janoo (1997, pl.18, figs.E-H).

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[29] Erroneously stated by Salvadori (1893) to be in the Oxford University Museum, which does, however, have a cast of this specimen (OUM 19621).

[30] Hume & Steel (2013) list this specimen as male.

A.1374 cranium. Cavern. Transferred from Zoology Dept. Transit of Venus Collection.

A.1375 (76.1.28.5; ♀). Cranium and beak, right and left quadrates (left one with damaged orbital process), right quadrate (?♂), symphysis and proximal halves of right and left mandibular rami, proximal end of right mandibular ramus, pair of humeri, pair of tibiotarsi, pair of tarsometatarsi. Skull (76.1.28.6; ♀; lacks quadrates, pterygoids and jugal bars), MB. Cavern. Transit of Venus Collection. Transferred from Zoology Dept. MB. Figured: Janoo (1997, pl.7, figs.G, H).

A.1376 (76.1.28.6; ?♂). Pair of palatines, pair of quadrates, mandibular symphysis and distal ends of right and left rami, proximal ends of right and left mandibular rami, Cavern. Transferred from Zoology Dept. Transit of Venus Collection. MB.

A.1377 two sterna (♀): 76.1.28.38 (damaged caudally) and 76.1.28.39. Both transferred from Zoology Dept. Transit of Venus Collection. MB. Figured: Janoo (1997, pl.22), Hume & Steel (2013, fig.5D).

A.1378 pair of humeri (♂; left one damaged proximally). Cavern. Transferred from Zoology Dept. Transit of Venus Collection. MB.

A.1379 pair of humeri (♂). Transit of Venus Collection. Cavern. Transferred from Zoology Dept. MB. [Label in box reads: "Quads removed for photog. SDC 9/8/95"] [Label reads: "Photog SDC 18.10.93 A1379"] Figured: Janoo (1997, pl.17, figs.A, D).

A.1380 pair of humeri (♀). Cavern. Transferred from Zoology Dept. Transit of Venus Collection. MB.

A.1381 two pairs of humeri: ♂ and ♀. Both from a cavern, transferred from Zoology Dept., MB.

A.1382 right and left ulnae (♂, 'MB.'), two radii (♂; with exostoses on distal ends). Cavern. Transferred from Zoology Dept. Right ulna figured: Hume & Steel (2013, fig.7E).

A.1383 right and left ulnae, right and left radii (♂). Cavern. Transferred from Zoology Dept. MB.

A.1384 right ulnae and radius (♂), left ulnae and radius (♂). Cavern. Transferred from Zoology Dept.

A.1385 right and left ulnae, right and left radii (♀). Cavern. Transferred from Zoology Dept.

A.1386 right and left ulnae, right and left radii (♀). Cavern. Transferred from Zoology Dept.

A.1387 pair of carpometacarpi (♂), with three fragments of exostosis. Cavern. Transferred from Zoology Dept. MB. Right carpometacarpus sectioned transversely (Hume & Steel (2013); thin section of exostosis made by Tony Wighton (http://www.nhm.ac.uk/research-curation/scientific-resources/collections/palaeontological-collections/palaeontology-specimen-database/index.php?action=listing&Keyword=pezophaps&RecordsPerPage=10). Thin section: figured: Hume & Steel (2013, fig.6A).

A.1388 pair of carpometacarpi (♂), two tarsometatarsi (♂). Cavern. Transferred from Zoology Dept.

A.1389 pair of carpometacarpi (♀), "young ?male" (with slight exostosis). Cavern. Transferred from Zoology Dept. Right carpometacarpus figured: Ottow (1950, pl.vi, fig.16b).

A.1390 two pairs of carpometacarpi (♀). Cavern. Transferred from Zoology Dept. MB.

A.1391 pair of carpometacarpi (♀). Cavern. Transferred from Zoology Dept. MB.

A.1392 pair of femora (♂). Transferred from Zoology Dept. MB.

A.1393-1394 two pairs of femora (♂). Cavern. Transferred from Zoology Dept. MB.

A.1395-1397 three pairs of femora (♀). Cavern. Transferred from Zoology Dept. MB.

A.1398 pair of tibiotarsi (♂). Cavern. Transferred from Zoology Dept. MB.

A.1399 pair of tibiotarsi (♂). Cavern. Transferred from Zoology Dept. MB.

A.1400 pair of tibiotarsi (♀). Cavern. Transferred from Zoology Dept. MB.

A.1401-1403 three pairs of tibiotarsi (♀). Cavern. Transferred from Zoology Dept.

A.1404 pair of tarsometatarsi (♀). Cavern. Transferred from Zoology Dept. MB.

A.1405 pair of carpometacarpi (♂), pair of tarsometatarsi (♂). Cavern. Transferred from Zoology Dept. MB.

A.1406 pair of tarsometatarsi (♂). Cavern. Transferred from Zoology Dept.

A.1407-1409 three pairs of tarsometatarsi (♀). Cavern. Transferred from Zoology Dept. MB.

A.1410 pair of fibulae (?♀). Cavern. Transferred from Zoology Dept. MB.

A.1411-1412 two pairs of fibulae (♂). Cavern. Transferred from Zoology Dept. MB.

A.1413-1415 three pairs of fibulae (♀). Cavern. Transferred from Zoology Dept. MB.

A.1416 (76.1.28.16). Pelvis (♀; damaged caudally). Cavern. Transferred from Zoology Dept. MB.

A. 1417 pelvis (♂; damaged caudally). Cavern. Transferred from Zoology Dept. MB.

A.1418-1419 two pairs of coracoids (♂). Cavern. Transferred from Zoology Dept. MB.

A.1420-1423 four pairs of coracoids (♀). Cavern. Transferred from Zoology Dept. MB.

A.1424-1425 two pairs of scapulae (♂). Cavern. Transferred from Zoology Dept. MB.

A.1426 pair of scapulae (♂). Cavern. Transferred from Zoology Dept. MB.

A.1427 pair of scapulae (♀). Cavern. Transferred from Zoology Dept. MB.

A.1428 pair of scapulae (♀). Cavern. Transferred from Zoology Dept. MB.

A.1429 os coxae: right and left portions of pelvis (76.1.28.28; ♂), right half of pelvis (76.1.28.35; ♀). Transferred from Zoology Dept. MB.

A.1430 ribs: five vertebral (right; three with uncinate processes), seven vertebral (left; three with uncinate processes and three with damaged uncinate processes), two vertebral short ribs.

A.1431 set of vertebral ribs: three right side, six left side (three with uncinate processes), two short ribs. Cavern. Transferred from Zoology Dept. MB.

A.1432 vertebral ribs: three right side (one with uncinate process), four left side, short rib, fragment. Cavern. Transferred from Zoology Dept.

A.1433 (76.1.28.13). Vertebral column (on a string): 1st-12th, 14th-18th (?no 13th). Cavern. Transferred from Zoology Dept. M.B.

A.1434 vertebral column (♂; on a string): 1st-18th. Cavern. Transferred from Zoology Dept. MB.

A.1435 vertebral column (♀; on a string). 1st-18th (notarium shows divisions between the vertebrae). Cavern. Transferred from Zoology Dept.

A.1436 (76.1.28.13). Vertebral column (♀; on a string). 1st-17th. Cavern. Transferred from Zoology Dept. M.B.

A.1437 (76.1.28.22 and 76.1.28.23). Two complete synsacra (?♂). Cavern. Transferred from Zoology Dept. MB.

A.1438 right first metatarsal, sixteen pedal phalanges, six unguals (including one lacking the distal tip). Cavern. Transferred from Zoology Dept. Label reads: “Imperfect set of toe bones (right and left)”. Cavern.

A.1439 right first metatarsal, two left first metatarsals, sixteen pedal phalanges, four unguals. Cavern. Transferred from Zoology Dept. Label: “Imperfect set of toe bones (right and left)”. MB.

A.1440 four columellae. Cavern. Transferred from Zoology Dept.

A.1441 (76.1.28.7). Mandibular symphysis and distal half of left ramus, middle portion of right ramus, synsacrum with exostosis (figured: Ottow 1950, pl.i, figs.3, 4), vertebral short rib, three sternal ribs (one with a displacement, one exhibiting bending, and one with a dislocation), three ?sternal rib fragements, left coracoid (♀; with dysplastic alteration and exostotic growth; figured: Ottow 1950, pl.ii, fig.8; Hume & Steel 2013, fig.7C),[31] right humerus (distal end broken off and separate), right humerus (♀; with dysplastic shaft; figured: Ottow 1950, pl.iii, fig.9b), ulna (♂; with displastic alteration in the middle of the shaft; figured: Ottow 1950, pl.iii, fig.11e), three right ulnae (♀), two left ulnae (♀), right and left ulnae (♀; with swelling of midshaft, left one shows a displacement), proximal end of right ulna, radius (♂; with exostosis), radius (♂; with swelling of midshaft; figured: Ottow 1950, pl.v, fig.13d), radius (?♀; lacks proximal end), left carpometacarpus (♀; with small round exostosis; figured: Ottow 1950, pl.vi, fig.16a), left femur (♀), fibula (with exostosis on fibular head), pedal phalanx (with distortion). Cavern. Transferred from Zoology Dept. “Various fractured and diseased bones.” “26 bones (25 missing 3/1960 LMP; 51713 L)” [later found JP 7/2001]. MB. A ♀ ulna, with length approximately 7cm and marked ‘MB’, with dysplastic changes was figured by Ottow (1950, pl.iii, fig.11; 1951, fig.3). Hume & Steel (2013) list: 1441.1 right humerus (♂, with healed fracture); figured: Hume & Steel (2013, fig.7B). Hume & Steel (2013) list the right ♂ humerus as 1441.1 and the left ♀ coracoid as 1441.2.

A.1442 five patellae (?♀). Cavern. Transferred from Zoology Dept.

A.1452 alar digit II phalanx 2 (♀). Transferred from Zoology Dept.

A.1453 tracheal rings “?Pezophaps solitarius”. Cavern. Transferred from Zoology Dept.

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[31] This specimen appears to have been damaged since it was photographed for Ottow (1950), the omal end having been broken off.

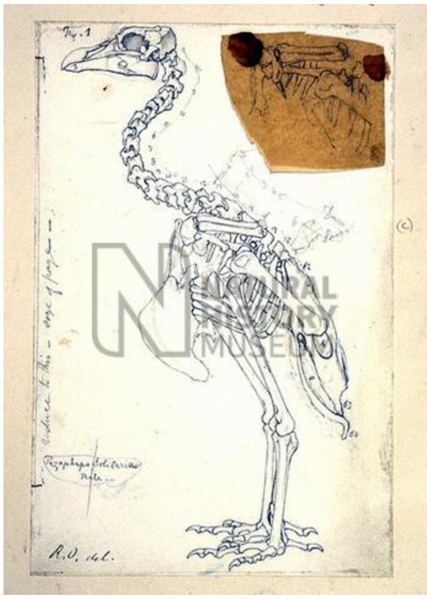
A.1454 (76.1.28.54). Skull bones. three lachrymals (one ?right and two ?left), eight pterygoids, four jugals plus quadratojugals. Cavern. Transferred from Zoology Dept.

A.1467 (76.1.28.5b). Fifteen clavicles (right and left sides; ♂ and ♀), two pairs of clavicles (tied together), two furculae (?♂). Cavern. Transferred from Zoology Dept.

A.1470 skull (lacking pterygoids and quadrates). Figured: Janoo (1997, pl.6, fig.C). Right quadrate. (76.1.28.3.). MB. Figured: Janoo (1997, pl.15). [listed by Janoo (1997) but not seen by the present author]

[**A.3224** see *Raphus*]

A.3505 partly articulated skeleton (♂), originally completely articulated (Owen 1878, pl.vii; Pycraft 1931) but several parts have since become detached. These are: skull and mandible (with ceratobranchials and epibranchials attached), four cervical vertebrae, 5th cervical, two sternal rib fragments, right femur (with patella attached), pair of tibiotarsi (with fibulae attached), pair of tarsometatarsi (right one with digit I attached), articulated pedal digit I, articulated pedal digits II, III, IV, II, IV. The caudal part of the left pubis appears to presently be missing. It is uncertain whether the specimen once had a left radiale (there is a small hole on the left radius, perhaps for its articulation by wire). Furthermore, Owen's figure (1878, pl.vii, fig.1) shows phalanges 1 and 2 of digit II, which are not extant; whether they were originally present or merely interpolations is not known. Cavern. Transferred from Zoology Dept. (Bird Room) Sept. 1959, where it was registered as 1.28.1, to the Palaeontology Dept. Transit of Venus Collection. The skeleton was mounted by James Flower,[32] under the instruction of William Henry Flower that it be assembled according to that of *Didunculus*, at the Royal College of Surgeons and kept in their collection before being later moved to the BM(NH). Mentioned by Lambrecht (1933) as being in the BM. Figured: Owen (1878, pl.vii, figs.1 [reproduced (edited) in: Hachisuka 1953, pl.xiv], 2, pl.viii, fig.1);[33] Owen (1879, pl.iv, fig.1 [reproduced: Parish (2013, fig.5.46), Rodríguez-Pontes (2014, figs.2, 3, 5, 6)], pl.v, figs.1-3); Pycraft (1931, p.699 [reproduced: Parish (2013, fig.5.45)]); Simonetta (1960, fig.12); Parish (2013, fig.6.10). Sketch of the skeleton by Owen: 512c of Ingles & Sawyer (1979); NHM Picture Library Image 41072. Left carpometacarpus figured: Hume & Steel (2013, figs.3D-F, 4B).



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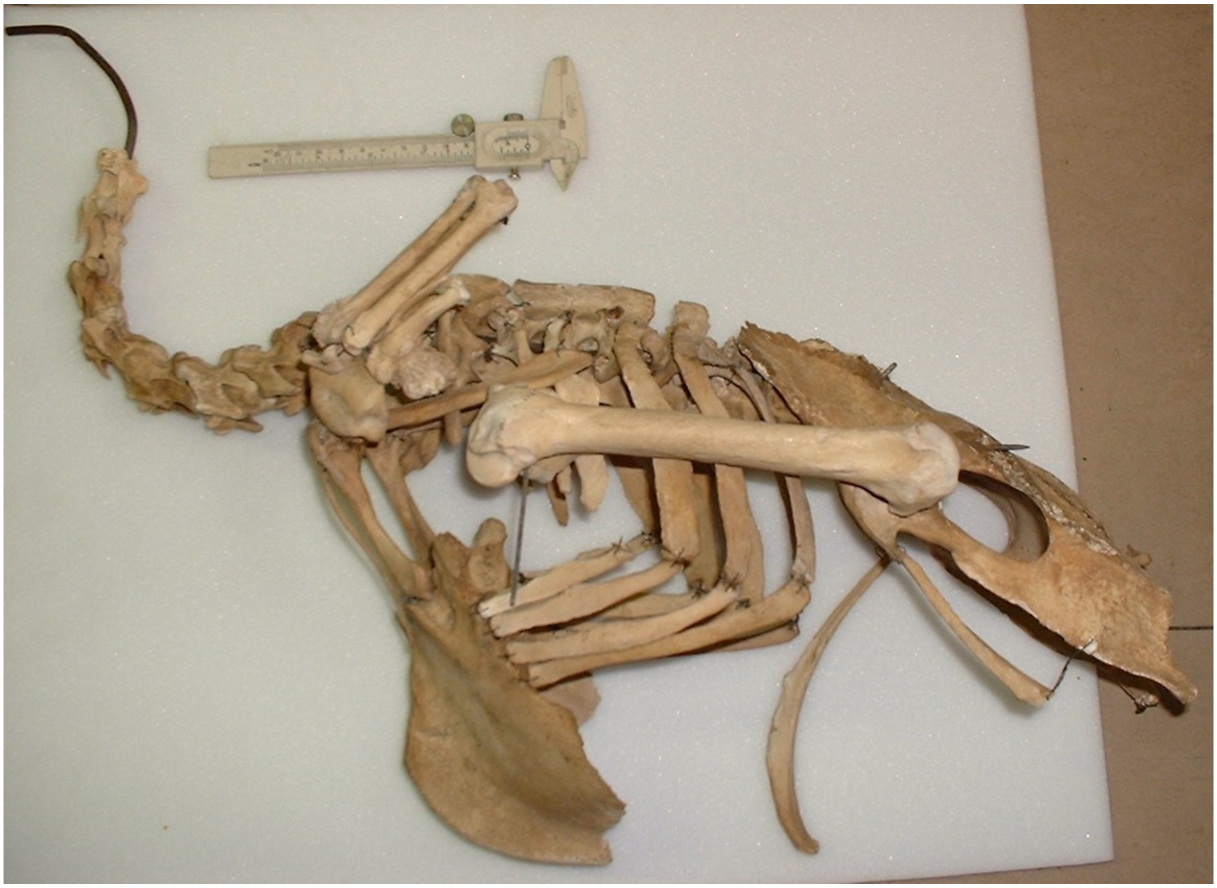
[32] James Flower (1800-1877). Assistant and Articulator at the Royal College of Surgeons of England.

[33] Apparently *contra* Ingles & Sawyer (1979, p.159, no.512c,d), who listed pencil drawings of male and female skeletons by Owen and stated that they were drawn from Cambridge University specimens. These were presumably the originals for the lithographs in Owen (1878, 1879).

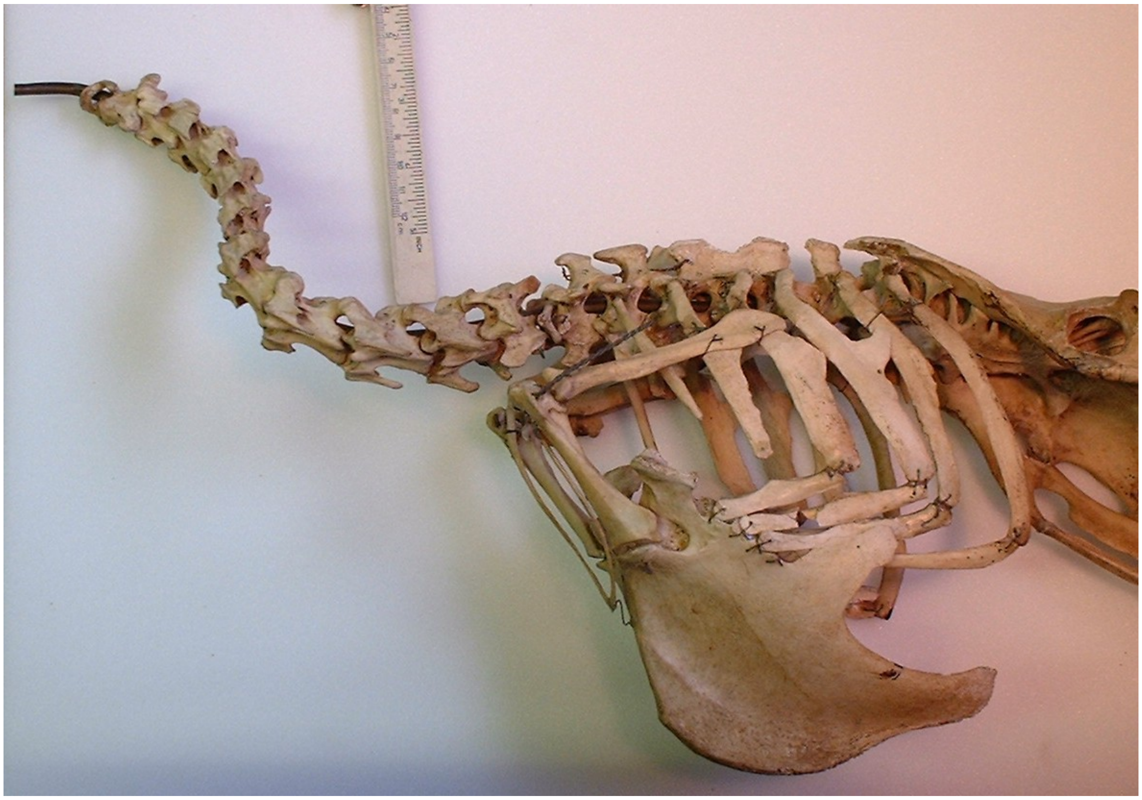
Illustration of A.3505 by Owen: 512c of Ingles & Sawyer (1979) (NHM Picture Library, © Natural History Museum).



A.3505 (© Jolyon C. Parish).

A.3506 a partly articulated skeleton (♀), originally completely articulated but several parts have since become detached. These are: skull and mandible (with ceratobranchials and epibranchials attached), left wing articulated (humerus, ulna, radius, ulnare, carpometacarpus, phalanx 1 of digit II), pair of femora (with patellae attached), pair of tibiotarsi (with fibulae attached), pair of tarsometatarsi (with digit I attached), right and left digits II, III and IV articulated. Cavern. Transferred from Zoology Dept. (Bird Room) Sept. 1959. Transit of Venus Collection. Originally part of the Royal Society collection. Mentioned by Lambrecht (1933). Figured: Owen (1878, pl.viii, fig.2); Owen (1879, pl.iv, fig.2 [reproduced: Parish (2013, fig.5.46), Rodríguez-Pontes (2014, figs.2, 3, 5, 6)], pl.v, figs.4, 5); Simonetta (1960, fig.12); Janoo (1997, pls.5, pl.6, figs. A, B, pl.27, pl.28, fig.A); Parish (2013, fig.6.10). Sketch of the skeleton by Owen: 512d of Ingles & Sawyer (1979).

Hume *et al*. (2014b) stated that Slater, although not recording the precise location of his excavations, reported that A.3505 and A.3506 were discovered in a cave that had previously excavated by Jenner. This was presumably that mentioned by Slater (1879a): "On October 7th I found some new caves. These formed a branch of a cavern already dug [...] In these we found a large quantity of Solitaire bones and the almost perfect skeletons of a male and female mingled, including the rings of the trachea" (p.294).



A.3506 (© Jolyon C. Parish).

A.3507 (76.1.28.50). Carpometacarpi: pair (♂), two pairs (♀; with exostoses: figured by Ottow 1950, pl.vi, fig.16e-f (right), g-h (left); Ottow 1951, fig.1), four right, one right (missing part of minor metacarpal), one left. Transit of Venus Collection. Transferred from Zoology Dept. Label reads: "13 pairs of carpometacarpi plus some odd ones." MB. Right ♂ carpometacarpus with large exostosis figured: Ottow (1950, pl.vi, fig.16d). A right ♂ carpometacarpus (without exostosis. Figured: Hume & Steel 2013, fig.4A) was labelled as **NHMUK PVA 9044** by Hume & Steel (2013) (the specimen has a yellow label attached: "A 3507"), although referred to the left side. Hume & Steel (2013) also listed a left ♀ carpometacarpus (with exostosis. Figured: Hume & Steel 2013, fig.4D) as **NHMUK PVA 9045** and a right ♂ carpometacarpus (with large exostosis. 'M B.' Figured: Hume & Steel 2013, fig.3A-C) as **NHMUK PVA 9047**.

A.3508 (76.1.28.7) (♀). Cranium, beak, three skull fragments, two nasal processes of premaxilla, palatine fragment, pair of quadrates (right one: orbital process detached, damaged otic process), mandible: symphysis and proximal half of left ramus, median portion of right ramus, proximal ends of right and left rami. Cavern. Transferred from Zoology Dept. MB. Label in box: "1 sectioned skull… Dr. Rendahl May 1949".[34]

A.3606 sternum (♂). Listed by Hume & Steel (2013).

A.9041 right humerus (♂). Figured: Hume & Steel (2013, fig.7A).

A.9042 left coracoid (♀). Figured: Hume & Steel (2013, fig.7D).

A.9043 right ulna (♂, pathological). Figured: Hume & Steel (2013, fig.7F).

A.9044 see A.3507

A.9045 see A.3507

A.9046 left carpometacarpus (♀). Figured: Hume & Steel (2013, fig.4C).

A.9047 see A.3507

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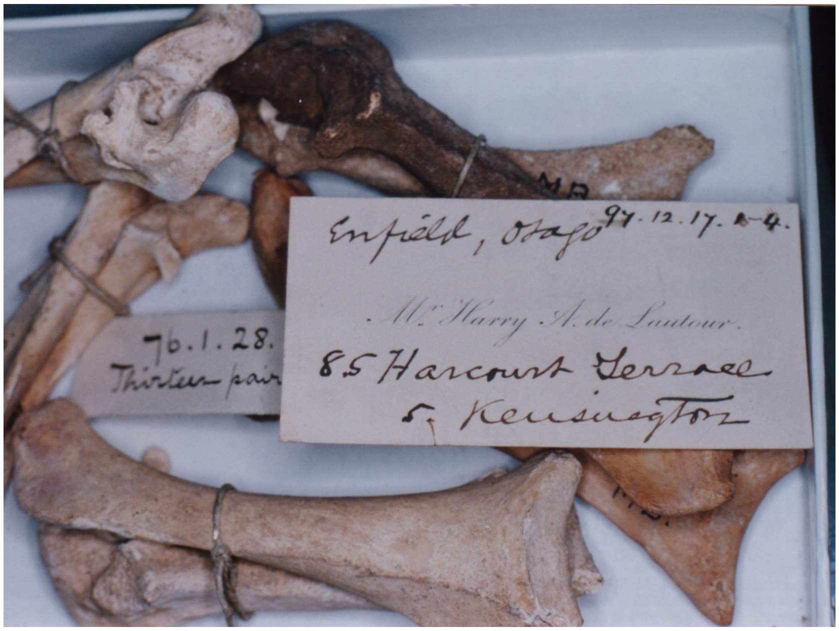
[34] Hialmar Rendahl. Director of the Vertebrate Department of the Naturhistoriska Riksmuseum in Stockholm. He also requested a loan of pathologic *Pezophaps* material from the OUM and UMZC.

76.1.28.8 cranium (♂), premaxilla and maxillae, mandibular symphysis and distal half of left ramus, middle portion of right ramus, proximal ends of right and left rami (together make a whole mandible). MB.
76.1.28.9 (♀) Cranium, pair of quadrates. MB.
76.1.28.11 cranium sectioned longitudinally (fragmentary). MB. [probably that loaned to Benno Ottow (Ottow 1950). ♀; supraorbital width 60mm (*ibid*.)]
76.1.28.12 (♂) Cranium, left maxilla and corpus ossis premaxillare, right maxilla, right and left palatines, left quadrate, proximal ends of right and left mandibular rami, symphysis and distal halves of right and left mandibular rami. MB.
76.1.28.13 vertebral column on a string (♂; vertebrae 1-18).
76.1.28.22 right side of pelvis, postacetabular portion of left side of pelvis. MB.
76.1.28.24 synsacrum. MB.
76.1.28.25 fragmentary synsacrum. MB.
76.1.28.26 four pairs of pubes.
76.1.28.27 left side of pelvis (damaged cranially and caudally). MB.
76.1.28.29 left side of pelvis (damaged cranially and caudally; ♂). MB.
76.1.28.31-76.1.28.34 four right sides of pelvis (damaged cranially and caudally, ♂). MB.
76.1.28.36 right side of pelvis (damaged caudally; ?♀). MB.
76.1.28.37 right side of pelvis (damaged cranially and caudally; ♂). MB.
76.1.28.41 cranial portion of sternum (♂). MB.
76.1.28.42 box: vertebral and sternal ribs.
76.1.28.43 coracoids: three pairs (♂), two pairs (♀). MB. Labels read: “Thirteen pairs of Coracoids”;

Enfield , Otago 97.12.17.1-4

M^{r}. Harry A. de Lautour. [35]
85 Harcourt Terrace
S. Kensington



76.1.28.43 and accompanying label (© Jolyon C. Parish).

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[35] Harry Archibald de Lautour (1849-1917). Principal Medical Officer of the Otago District, New Zealand. Visited England in 1897.

76.1.28.45 scapulae: five right (♂), one left proximal end (♂), three right (♀), three left (♀), five left (?♀; damaged distally), five left proximal ends (?♀), two left proximal ends (?♀), three distal ends. MB.

76.1.28.46 humeri: pair (♂; right one damaged proximally), pair (♂; right one damaged proximally cranially), pair (♂; right one damaged proximally cranially and distally), four pairs (♀), two pairs (♀; right ones damaged distally), pair (♀; right one damaged proximally). Label for 76.1.28.46 reads: "Twenty pairs and one odd humerus".

76.1.28.47 "15 pairs of Ulna & Radius & 1 odd Radius". Three pairs of ulnae and radii (♂), MB. One pair of ulnae and a distal end of radius (♂; tied together). Left ulna (♂), MB. Four pairs of ulnae and radii (♀), MB.

76.1.28.48 48 radii: six ♂, 26 ♀ or juvenile, one distal ~half (♀). Some with exostoses on distal ends (including some ♀ specimens, but exostoses are only slightly developed on these).

76.1.28.49 ulnae: ♂: three right, four left, left proximal end, three with damage to proximal ends; ♀: 11 right, one right proximal half, 17 left, two with damage to proximal ends. MB.

76.1.28.59 "Twenty two pairs of fibulae & some odd ones." 12 pairs of fibulae, MB. 25 odd fibulae (some fragmentary), MB. ?Proximal end of ?clavicle.

76.1.28.62 eight right first metatarsals, four left first metatarsals, 90 pedal phalanges, plus a distal half of a pedal phalanx.

76.1.28.68 "Bones of the same individual" (although in the box at least two individuals are present, ♂ and ♀). Bones include two cranial fragments (representing two individuals), fragment of corpus ossis premaxillare (♀), fragment of left maxilla, two quadrates (?♀; pair), mandibular symphysis and distal ~half of left ramus, proximal end of left mandibular ramus, median mandibular ramus fragment, atlas (♀), two axes (♀), 3rd (♀), 4th (♀), 11th or 12th, 12th, ?12th, 13th, 14th, ?14th, 18th vertebrae, nine and a ~half other cervical vertebrae (♂ and ♀), one dorsal vertebra, cranial 2½ synsacral vertebrae, fragmentary distal ~half of synsacrum, seven vertebral ribs, ten sternal ribs (♂ and ♀), notarium, right scapula (♀), pair of coracoids (♀), clavicle (♀), fragment of sternum, pair of humeri (♀), radius (♀), left ulna (♀), left carpometacarpus (♀), four fragments of pelvis, two pairs of fibulae, seven pedal phalanges (♂ and ♀), bone fragment.

76.1.28.69 proximal end of left mandibular ramus (♂), middle cervical vertebra (♂), right scapula (♂), ? right scapula (♂; bent), left scapula (♂; lacks distal extremity), right coracoid (♂), right coracoid (♀), left coracoid (♀), right humerus (♂; lacks proximal end, damaged distally), left humerus (♂), right ulna (♀), three radii (♀), 11 sternal fragments (♂), two sternal ribs (♂), left femur (♂; damaged proximally and distally), proximal end of right femur (♂), left tibiotarsus (♀), left tibiotarsus (♀; damaged proximally), distal ~half of left tibiotarsus (♀), fibula, right tarsometatarsus (♂; damaged proximally, right tarsometatarsus (?♀; lacks proximal end, damaged distally), left tarsometatarsus (♀), tarsometatarsus shaft fragment, pedal phalanx (♂). Accompanying label reads: "Recently received from W. Slater."[36] Also a box of skull fragments, quadrates, vertebral ribs, sternal fragments, ulnae, radii, carpometacarpi and pedal phalanges in the same tray. Specimens *t′*. of Salvadori (1893): "Miscellaneous bones, Mare aux Songes. Purchased of Mr. H. H. Slater" (p.635)?

S1988.49.1 partial skeleton. Henry Horrocks Slater, Transit of Venus Expedition; Royal Society. "Several bone fragments, together with a label reading 'Rodrigues 1874'" (Knox & Walters 1994, pp.134-135).

- Box: cervical and dorsal vertebrae [uncatalogued].
- Box: six synsacral fragments (damaged), plus two fragments of caudal synsacrum. 22 sternal fragments. One indet. shaft fragment (?♀).
- Box: six fragmentary synsacra, plus two fragments of synsacrum with right acetabular region, and a fragment of synsacrum with left acetabular region.
- No catalogue number. Tarsometatarsi: right and left (♂; tied together), two left (♂), right and left (♂; right one shows a distorted distal end), right (♂; damage to trochleae), five left (♀), right and left (♀; tied together), two right (♀). Tibiotarsi: two right (♂), four left (♂). All labelled MB.
- Tray: Twenty sternal fragments.

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[36] Probably Walter Theodore Slater (b. 1882), Henry Horrocks Slater's son. Walter joined the Canadian Over-Seas Expeditionary Force in 1915.

- Box: two fragmentary pelves (damaged cranially and caudally, have right acetabular regions; ?♀), fragmentary pelvis (damaged cranially and caudally, has right and left acetabular regions; ?♂), fragment of ilium, box of bone fragments. MB.
- No catalogue number. Two pairs of scapulae (♀). MB.
- No catalogue number: pair of humeri (♂; tied together). MB.
- Box: femora: right (♂; lacks proximal end, damaged craniodistally), two right proximal ends (♂), two right shafts (♂), left (♂; damged proximally and distally), left (♂; lacks proximal end, damaged distally), left proximal ~half (♂), two left (♂; lack proximal ends), left (♂; lacks proximal end, damaged distally), left proximal end (♂), left proximal end (♂; damaged), right (♀), two right (♀; lack distal ends), right (♀; lacks distal end, damaged proximally), right (♀; lacks articular head), right shaft (♀), left (♀; damaged distally), three femoral shaft fragments. Right tibiotarsus (♂; damaged distally).
- Box: tibiotarsi: two pairs (♀), pair (♀; left one broken in two), right (slight damage proximally).
- No catalogue number. Tibiotarsi (♀): pair (right one damaged proximally; ♀), two pairs, two right (damaged slightly proximally; ♀), two right tibiotarsi (one damaged slightly proximally; ♀). All labelled MB.
- No catalogue number. Box of numerous rib fragments (vertebral and sternal) and other fragments; femora: pair (♂), right (slight damage to middle trochlea cranially), two left (♂), five pairs (♀); pair of tarsometatarsi (♂). MB.
- No catalogue number. Pair of tibiotarsi (♂). MB.
- No catalogue number. Three vertebral short ribs, pair of coracoids (♂), pair of ulnae and pair of radii (tied together; ♂), pair of carpometacarpi (with slight exostoses; ♀), right and left first metatarsals, eleven pedal phalanges (including one labelled "Dig.3 Phal.1"). MB.
- Tray: Cranial fragment; proximal end of right mandibular ramus (♂); proximal end of left mandibular ramus (♀); vertebrae: 21 cervical, axis (♀), 3rd (♀), two 12th (♀), 13th (♂), 13th (♀), notarium (16th and 17th), 18th (♂), ventral part of 18th (♀), 18th; six sternal fragments; radius (♀); proximal end of left tibiotarsus (?♀); distal end of right tibiotarsus (♀; damaged); distal end of right tibiotarsus (♀; lacks extremity); proximal end of ?left tarsometatarsus (?♀; damaged); distal end of right tarsometatarsus (?♀; damaged); proximal end of tarsometatarsus (damaged). Other bones (not belonging to *Pezophaps*).[37]
- Box: vertebral ribs: five right side (two with uncinate processes), five left side (one with uncinate process). Pair of scapulae (♂), pair of fibulae (?♂). MB.
- Box: Coracoids: five pairs (♀), pair (♀; right one damaged at lower end), left (♂), left (♂; damaged lateral process), right (♀), two right (♀; damaged lower ends), two left (♀), right (♀; damaged lateral process), left (♀ damaged lower end), right (?♂; damaged lower end), right (♀ or juvenile; damaged lower end), right (♂; lacks lower end), left (upper end). Labels read: "35 Coracoids" "2 taken out June 20/77". Pair of humeri (♂; MB), two pairs of humeri (♀; MB).
- Box: skull fragments, including: nine cranial fragments (♂ and ♀; including three with foramen magnum preserved), pair of quadrates (♂; with damaged orbital processes), two left quadrates (♀; with damaged orbital processes), five fragments of corpus ossis premaxillare, thirteen maxillary fragments, fragment of palatine, proximal end of right mandibular ramus, proximal end of left ramus, proximal end of left ramus (damaged), numerous middle portions of mandibular ramus, three fragments of mandibular symphysis, bone fragments.
- Box: numerous rib fragments (vertebral and sternal), two left coracoids (♂; missing lower ends), distal end of ulna, fibula. Label accompanying the bones reads: "Duplicate Solitaire Bones."
- Box: humeri.
- Box: two left portions of pelvis (♀).
- Box: pelvis fragments.
- Box: four pairs of tibiotarsi (♂). MB.
- Box: femora: three pairs (♂), right (♂; slight damage distally), left (♂; slight damage distally), five pairs (♀). MB.

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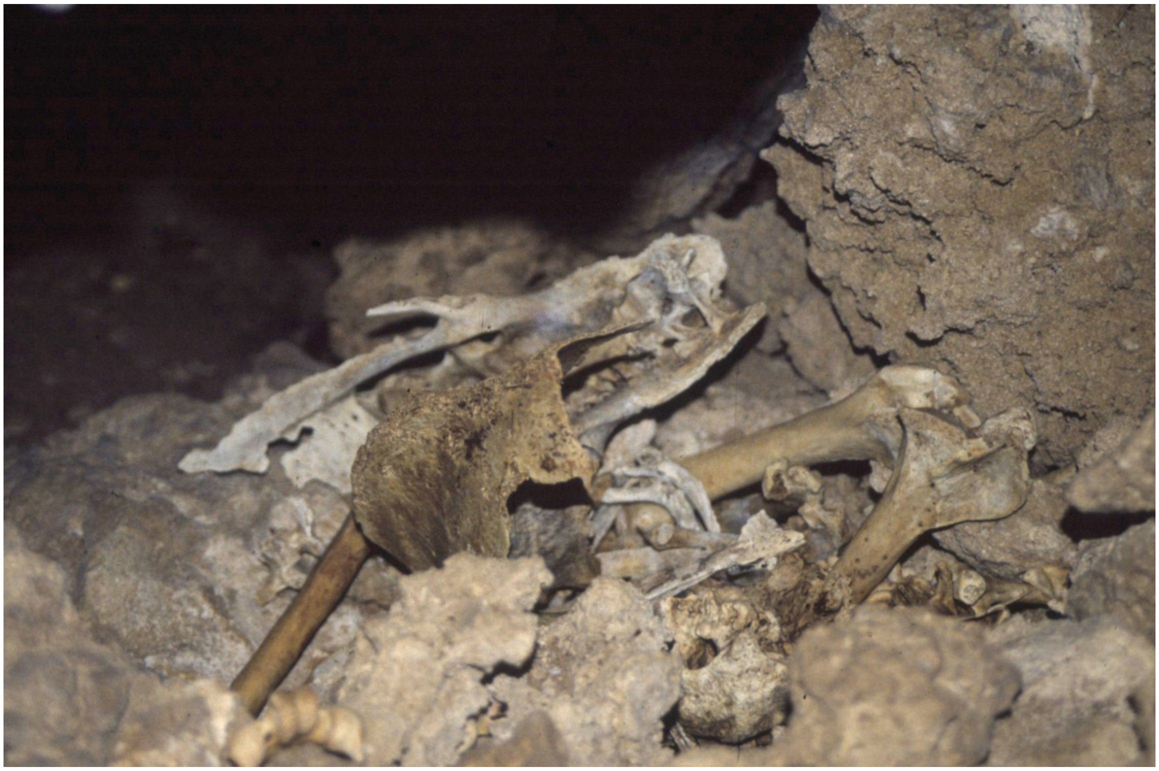
[37] *Cylindraspis* sp. fragments (Nick Arnold, pers. comm., 11th October 2003).

- Box: femora: right and two left (♀; damaged proximally and distally), proximal end of left (♀), left (♂; lacks proximal and distal ends), proximal end of left (♂), right (♂; damaged proximally and distally), right (♂; lacks distal end), two right (♂; lacks proximal end, damaged distally), right (♀; lacks proximal end, damaged distally), right (?♂; damaged distally), 9 femoral shaft fragments (♂ and ♀).
- Box: femora: right (♀; damaged proximally), right (♀; lacks proximal end, damaged distally), right proximal end (♀), right shaft (♀), two left (♀; damaged proximally and distally), left (♀; damaged distally), left (♀; lacks distal end), right (♂; damaged distally), right (♂; lacks distal end, calcareous covering), right (♂; lacks proximal end, damaged distally), right (lacks proximal end, damaged distally), right proximal end (♂), left (♂; damaged distally), left (♂; damaged proximally and distally), three right shaft fragments (♂), distal femur fragment, five shaft fragments.
- Box: femora: right (♀; lacks distal end, damaged greater trochanter), two shafts of right (♀), three left (♀; damaged proximally and distally), shaft of left (♀), left (♂; distal ~half damaged), left (♂; lacks distal end), shaft of left (♂), two right (♂; damaged proximally and distally), shaft of right (♂), proximomedial part of right (♂), two left distal ends (damaged distally), three shaft fragments, bone fragment.
- Box femora: two right (♂; damaged proximally, lack distal ends), right (♂; damaged proximally and dostally), three left (♂; damaged proximally, lack distal ends), left (♂; damaged proximally and distally), right (♀; damaged distally), right (♀; lacks proximomedial part), right (♀; lacks proximal end), right (♀; damaged proximally and distally), two right (♀; lack proximal and distal ends), right shaft (♀), left (♀; damaged proximally, lacks distal end), left (♀; damaged distally), left shaft (♀), proximal femoral fragment (♂), two right shaft fragments (?♂), shaft fragment (♀).
- Box: femora: two right distal ends (♂; damaged distally), three right shafts (♂), right shaft (?♂), left (♂; lacks proximal end, damaged distally), two right (♀; damaged proximally and distally), right (♀; lacks proximal end), right shaft (♀), three left (♀; lack proximal ends, damaged distally), left (♀; damaged distally), left (♀; in two halves, calcareous covering), left distal end (♀; damaged distally), two left shafts (♀), ?right distal end (damaged distally, calcareous covering), ?right distal end (damaged distally), left shaft. Three shaft fragments. Distal end left tibiotarsus (♀; damaged).
- Box: tibiotarsi: three pairs (♀) MB, left (damaged proximally).
- Box: tibiotarsi: right (damaged proximally), right (slight damage proximally), right. MB.
- Box: tibiotarsi: three pairs (♂), right (♂), right (♀). MB.
- Box: tibiotarsi: “Pezophaps For Registration.” Two right and two left (♂; damaged proximally), left (♀; damaged proximally). Left humerus (♂; damaged proximally).
- Box tarsometarsi: right (♂; damaged proximally and distally), right distal end (♂), two left (♂; damaged proximally, lack distal ends), left (♂; lacks distolateral part), left distal end (♂), left shaft (♂), shaft (♂), left distal ~half (?♂), right (♀; damaged proximally), right (♀; damaged distally), right (♀; lacks proximal end), right proximal ~half (♀), left (♀; lacks distal end), left shaft (♀), left proximal ~half (♀), right distal end, two left distal ends, left distal end (lacks medial trochlea), shaft fragment, indet. bone fragment (shaft).
- Box: tarsometatarsi: six pairs (♂), eight pairs (♀), pair (♂). MB.
- Box: tarsometatarsi: four pairs (♂), two pairs (♀; one left lacks middle trochlea). MB.
- Box: tarsometatarsi: one (♂; damaged slightly proximally and distally), two right (♀; one damaged proximocaudally). MB.
- Box: tarsometatarsi: right (♂; damaged distally), two right distal ~halves (♂), two left (♂; lack proximal ends, damaged distally), left (♂; lacks proximal end), right (♀; damaged proximally), two right (♀; lack proximal ends), right distal ~half (♀), left (♀; lacks proximal end, damaged distally), left distal ~half (?♀), right and left shafts (♂ or ♀).
- Box: tarsometatarsi: right (♂; damaged proximally), two right (♂; lack proximal and distal ends), three left (♂; lack proximal ends, damaged distally), left shaft (♂), right (♀; lacks proximal end), right (♀; lacks proximal end, damaged distally), right (♀; damaged distally), left (♀; damaged proximally), two left (♀; lacks proximal end), left (♀; damaged distally), ?right shaft (♀), two right and one left distal ends (?♂), right proximal end of shaft, right proximal end.

- Box: tarsometatarsi: right (♂; lacks proximal end, damaged distally), right (♂; lacks proximal and distal ends), left (♂; damaged proximally), left (♂; damaged proximally, lacks distal end), two right distal ends (♂; damage to trochleae), right distal end (♂; lacks trochleae III and IV), ?left shaft (?♂), left distal end (♂; damage to trochleae), left distal end (♂; lacks trochleae II and III), shaft fragment (♂), trochlea (?♂; damaged), right (♀), right (♀; slightly damaged proximally), three left (♀; lack proximal ends, damaged distally), left (♀; lacks trochlea IV), left proximal ~half (♀), ?right shaft fragment (♀), right distal end (♀; lacks trochlea III), left shaft fragment (♀), ?left shaft fragment (?♀), two left distal ends (♀; lack trochlea IV), two shaft fragments (♀), four shaft fragments, trochleae II and III.
- Box: tarsometatarsi: right proximal end (♂; damaged), right distal ~half (♂; damaged distally), right distal end (♂), right distal end (?♂), left (♂; lacks proximal end, damaged distally), left distal ~half (♂; damaged distally), left proximal end (♂), two left distal ends (♂), left distal end (?♂), proximal shaft fragment (♂), right (♀; damaged distally), two right (♀; lack proximal end, damaged distally), left (♀; lacks proximal end, trochleae II and IV and caudal part of shaft), left distal end (♀; damaged trochleae), right proximal end (fragmentary), left proximal end, left proximal end (damaged), left distal end (lacks trochlea II), two shaft fragments, trochlea fragment. ?Tibiotarsus shaft fragment. ?Radius shaft fragment.
- No catalogue number: tarsometatarsi: ♂: right (damaged proximocaudally), left (slightly abnormal distally); ♀: right (damaged proximaocaudally), two left.
- Box: 49 pedal phalanges, three right and five left first metatarsals, three unguals. MB.
- Box: three tracheal rings (black).

- In addition to these there is a skeleton from Caverne L'Affouche, found in November 1997 by Jeremy Austin and Nick Arnold, of the NHM. Not yet formally accessioned (Nick Arnold, pers. comm., 28th March 2008). See Parish (2013, pp.256, 381n39) for details. Figured (*in situ*): Parish (2013, fig.5.51).



Solitaire bones discovered in Caverne L'Affouche in November 1997 (© Nick Arnold).

- Julian Hume used a transversely sectioned distal end of tibiotarsus (BMNHrod1: limestone cave, Plaine Corail) and a transversely sectioned distal end of a left ulna ($CaCO_3$ deposits, Caverne Gastonia) from the NHM in his taphonomic studies. Ulna figured: Hume (2005, fig.5b thin section; figs.6c, d SEM).
- Hume & Steel (2013) list as unregistered the following: left ulna (♂), two left ulnae (♀), right ulna (♂), right ulna (♀), distal end of left ulna (♂), left radius (♀), two right radii (♀), right carpometacarpus (♀). These may or may not be distinct from the specimens listed above.

The collection includes five bones (A.1356-A.1360) formerly belonging to the ZSL (Newton & Newton 1869). These were collected in 1832 under the direction of Charles Telfair and were mislaid for twenty years and were thus not available for study when Strickland and Melville were compiling their book (1848). Strickland (1848) remarked that "three or four years ago, Mr. Fraser,[38] the late Curator of that Society [the ZSL], made at my request, a diligent search for these specimens, but all his endeavours to find them were fruitless [...] he found the identical box sent by Mr. Telfair; but, alas! the bones of the Solitaire, apterous as it was, had flown away, and the only bones that remained belonged to *Tortoises*!" (p.52). They were rediscovered in 1851 in the house of the ZSL by Bartlett: "In the month of July last an opportunity was afforded me by the Secretary of renewing this search, and I had the good fotune to find what I believe to be all the specimens sent to the Society by Mr. Telfair. Upon my informing Mr. Mitchell of my success, that gentleman, knowing the trouble and interest I had taken to recover them, granted me permission to examine, compare, and describe them, and to bring the subject before the Society" (Bartlett 1851, pp.280-281). John Wolley wrote to William Jardine (8th November 1851; D-211) that he had seen the bones of didine birds belonging to Bartlett and that the latter would exhibit them at the ZSL (Rookmaaker 2010). Bartlett (1851) described these bones, but only referred the right tarsometatarsus to the solitaire, although, in fact, all the bones are from that bird. Strickland (1853) also described and figured (pl.55, figs.1-4) them, but attributed the larger bones to *P. solitaria* and placed the smaller series under *P. minor*.

David William Mitchell, Secretary of the ZSL, wrote to Strickland (14th January 1852; E-1012) that the 9th December meeting of the ZSL was covered in the *Literary Gazette*. He added that the two bones were received, although one of these was broken during transportation. He stated that he would lend the ZSL bones to Strickland and send proofs of Bartlett's paper (Bartlett 1851; Rookmaaker 2010).

A left tarsometatarsus figured by Bartlett (1851, pl.xlv, fig.1) was stated by A. Newton (1865a) to be "now in the British Museum" (p.200). This was an Andersonian Museum specimen (see below).

The NHMUK collection contains numerous bones brought back to England from Rodrigues by Henry Horrocks Slater from the Transit of Venus Expedition. These (2000+ bones, including two associated skeletons – presumably A.3505 and A.3506) were originally deposited in the collections of the Royal Society of London (Hume *et al*. 2014b). Salvin & Sclater (1878) stated that "two nearly entire skeletons have been put together" from the "bones obtained during the Transit-of-Venus Expedition" and that these were "placed in the gallery of the British Museum" (pp.469-470). These were presumably A.3505 and A.3506. These two skeletons were also mentioned by Zur Strassen (1911). Salvadori (1893) listed "*p.* 22 odd bones presented by Sir E. Newton" (p.632). The majority of these can be identified with the specimens in the present catalogue.

Solitaire material loaned to Hialmar Rendahl (see below: Swedish Museum of Natural History) by the BM(NH) in 1949 was returned in 1953 (Ulf Johansson, pers. comm., 14th February 2008). This comprised 38 separate pathologic bones displaying exostotic and dysplastic alteration: one cranium, one mandible, five ribs, one synsacrum, one scapula, one coracoid, two humeri, three radii, eight ulnae, eleven carpometacarpi, two pelves, one fibula and one pedal phalanx (Ottow 1950). This material was studied by Benno Ottow in his work on the pathological bone diseases of that bird and is included in the above catalogue listing. Documentation accompanying the solitaire specimens reads (Dept. of Geology):

`11th May 1949`

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[38] Louis Fraser (1810-1866). Curator of the Museum of the ZSL 1843-1845 (Rookmaaker 2010).

38 SPECIMENS of PEZOPHAPS SOLITARIUS from RODRIGUEZ.

2 Pelves	(76.1.28 17
	(76.1.28 19
2 Metacarpals	A 1387)
1 "	A 1388) large
2 "	A 1399 small
1 "	76.1.28.50 v. large
4 "	76.1.28.50 small
24 bones (various)	A 1441
1 Pelvis	A 1441
1 Imperfect skull sectioned	76.1.28.11

Dr Rendahl
Stockholm
May 1949

A second note:

Pezophaps
2 pelves
on loan to
Prof Rendahl
Stokholm
May 1949-

A third note:

PEZOPHAPS

MUST GO } HARDENING
FOR

A fourth note:

Pezophaps

(for exchange)

The subfossil material collected by Anthony S. Cheke during the 1974 British Ornithologists' Union visit to Rodrigues probably included solitaire bones. Cheke gave all the bones to Graham Cowles (Anthony Cheke, pers. comm., 18th April 2011).

Other material, figured by Ottow (1950), which may or may not be included in the above listing:
mandible, lacking proximal ends (Ottow 1950, pl.i, figs.1 and 2)
pelvis (Ottow 1950, pl.ii, figs.5 and 6)

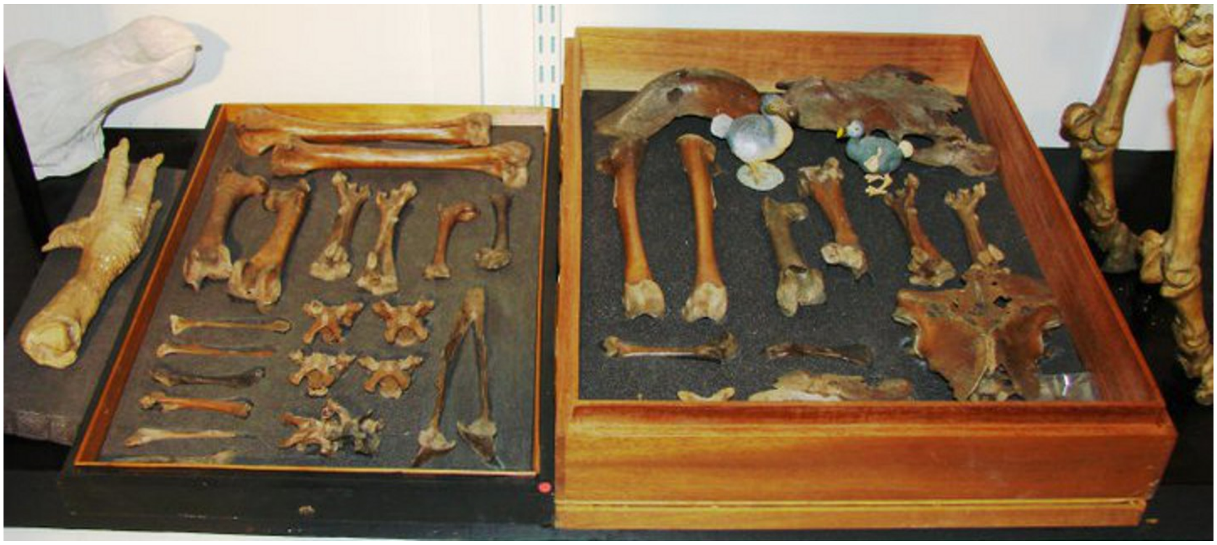
Grant Museum of Zoology and Comparative Anatomy, University College London

Grant Museum of Zoology and Comparative Anatomy, University College London, Rockefeller Building, University Street, London [the collection was formerly housed in the Darwin Building, University College London, Gower Street, London, WC1E 6BT. The collection reopened to the public, following the move, on 15th March 2011]

Raphus cucullatus

Y86 uncoloured plaster cast of the Tradescant head (bears 'Y86' on base). Presented by Edwin Ray Lankester in or after 1891 (Jack Ashby, pers. comm., 22nd December 2010).

Y86 brown-coloured plaster cast of the BM foot on a plaque. Donated in 1890s probably by Lankester along with the cast of the Tradescant head (Jack Ashby, pers. comm., 22nd December 2010; Mark Carnall, pers. comm., 3rd April 2012).



The Grant Museum specimens (© Grant Museum, of Zoology and Comparative Anatomy).

Y86 uncoloured cast of the Tradescant foot skeleton (lacking unguals of digits I, II and III), presented by Lankester along with the cast of the Tradescant head (Jack Ashby, pers. comm., 22nd December 2010).

Y105 tray/box of bones (on display): complete mandible, six mid-cervical vertebrae (6th-?8th), left & right scapulae, left & right coracoids, left & right humeri, left & right femora, left & right tibiotarsi, left & right fibulae, left & right tarsometatarsi.[39] Box dimensions: 485mm x 332mm x 30mm.

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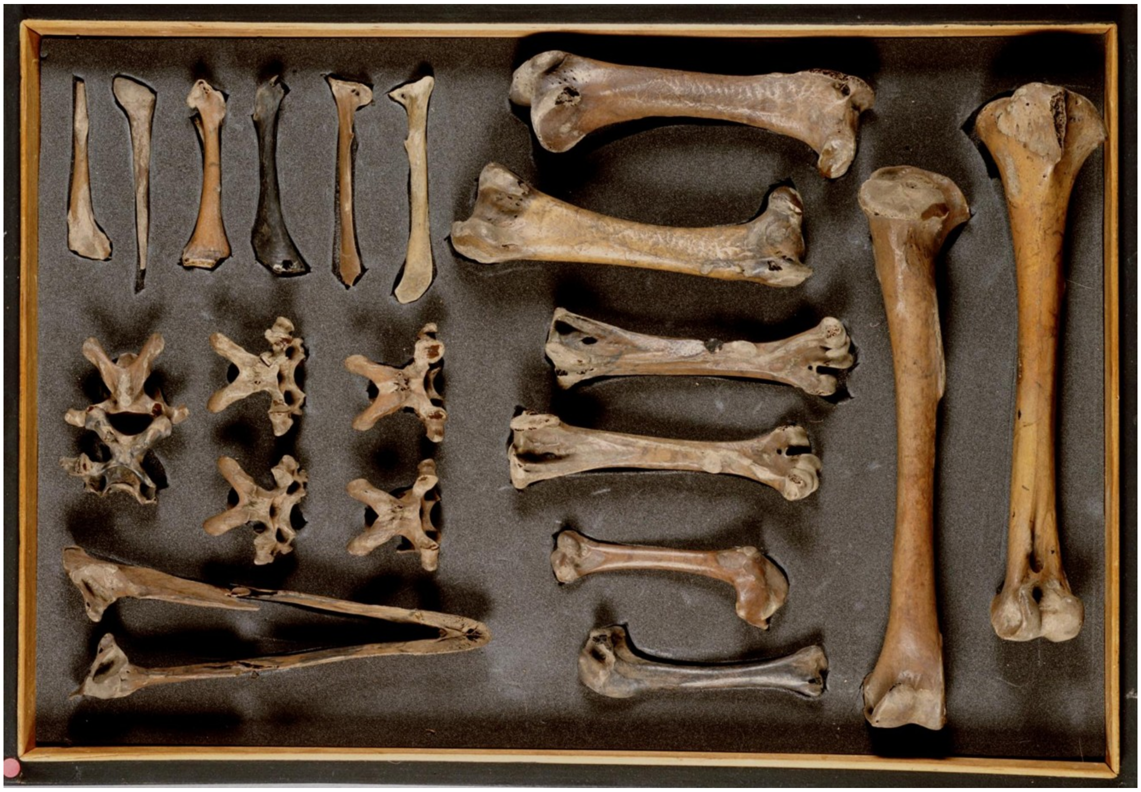
[39] Although the Grant Museum website (www.ucl.ac.uk/museums/grant/highlights.html 1999-2007, accessed 1 July 2010) states that the bones comprise "most of the skeleton of one individual animal and some additional remains" this is probably not the case (pers. obs.). Furthermore, there is no accompanying documentation for the bones (Jack Ashby, pers. comm., 5th February 2008). A news report (Hayes 2011) stating that rediscovered dodo bones were purchased from an Irish pub is yet another example of poor scholarship, the dodo bones being confused with a specimen of the Irish elk (Jack Ashby, pers. comm., 12th April 2011). Hayes (2011): "Academics at the Grant Museum, part of the University College of London, made a rare find in an old box found in an Irish pub. The Edwardian box, which they bought from the pub, contained bones of the extinct dodo along with a small model of the bird".



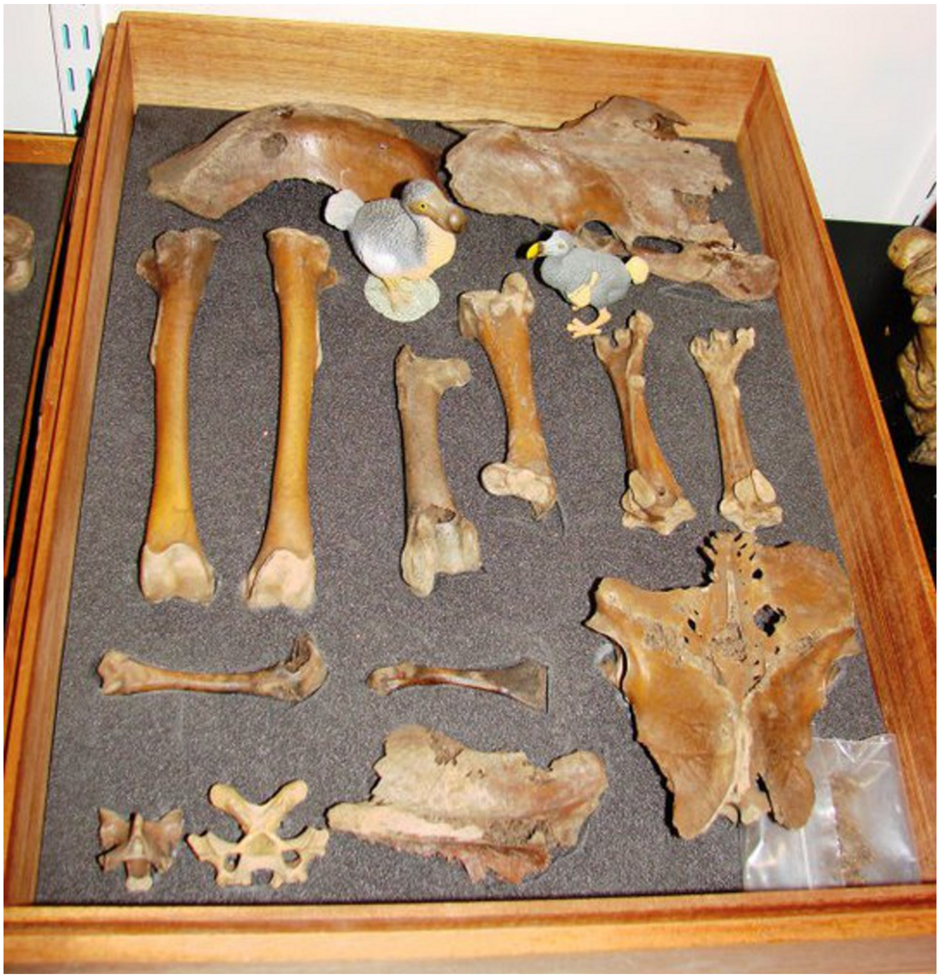
Y105 (© Jack Ashby, Grant Museum of Zoology and Comparative Anatomy).

Y105 tray/box of bones rediscovered in an Edwardian wooden box in a drawer (Kennedy 2011): 3rd or 4th cervical vertebra, mid cervical vertebra, two fragments of sternum, right coracoid, left humerus, two fragmentary pelves (lacking distal ends), left and right femora, left and right tibiotarsi, two right tarsometatarsi. "According to our records, there should always have been two boxes of bones, but none of the current staff had ever seen it and occasionally material has been documented twice in the past creating phantom duplicate specimens. We asked all the staff from the previous 20 years, and they confirmed its existence, but had know idea where it was. We feared it was lost" (Jack Ashby, UCL Museums & Collections Blog, 22 February 2011: http://blogs.ucl.ac.uk/museums/2011/02/22/half-a-dodo-2/ accessed 8 March 2012). The box "turned up at the back of a cupboard full of frogs and lizards a couple of years ago" (UCL Museums and Collections's Photos: http://www.facebook.com/photo.php?pid=8388042&id=352538109391 accessed 6 January 2011). According to Prigg (2011), the bones were rediscovered stored among those of a crocodile. These bones are now also on display (Jack Ashby, pers. comm., 5th January 2011).

According to Jack Ashby (pers. comm., 12th April 2011): "The record for Y105 was updated [in March 2008] with the comment "'Dodo bones' were previously recorded under two different numbers Y105 & Y195. It is unclear whether these two groups of bones were later put together under one accession number however, they have now been amalgamated under Y105"

It is therefore possible that the 'new' [*i.e.* the rediscovered] box was Y195, as the box wasn't known to exist, but there are no marking to suggest this is true. The entry for Y195 (as dodo) has been crossed out in the accession register by the current Curator".

Y86 and the "Pt. of sternum" probably also came from Lankester but are listed under "reserve stock". However, it is not certain as to whether this sternum is that which is part of the collection of bones in the two trays/boxes (Y105) (Mark Carnall, pers. comm., 3rd April 2012).



The Grant Museum specimens (© Grant Museum of Zoology and Comparative Anatomy).

Hunterian Museum, The Royal College of Surgeons of England

Hunterian Museum, The Royal College of Surgeons of England, 35-43 Lincoln's Inn Fields, London WC2A 3PN

Information partly from SurgiCat, The Royal College of Surgeons of England online catalogue, 2009:
http://surgicat.rcseng.ac.uk/%28wagl3255myhel2rnrtropl3k%29/detail.aspx
http://surgicat.rcseng.ac.uk/%28wagl3255myhel2rnrtropl3k%29/detail.aspx?parentpriref=
[accessed 22 July 2010]

Raphus cucullatus

RCSHM/Aves 701 incomplete mounted skeleton, bones from several individuals. College Museum Collection. Housed in Case 5, Bay 3. Composed of bones purchased at auction in 1865 (Simon Chaplin, pers. comm., 20th March 2008). William Henry Flower stated in a report made in 1866: "a portion of these [George Clark's dodo bones] were sent to this country and offered for sale, [and] we have been enabled to secure, at a moderate cost, some of the most characteristic bones" (quoted in Dobson 1962, pp.30-31).[40] These bones were purchased by Flower for £10 in March 1866 and were used to construct the skeleton for display. The skeleton was mounted by James Flower. Its standing height is 67cm. The skeleton bears 'A·1424·a' in white on the right coracoid. The skeleton's base has the label '701'. The sign accompanying the skeleton reads:

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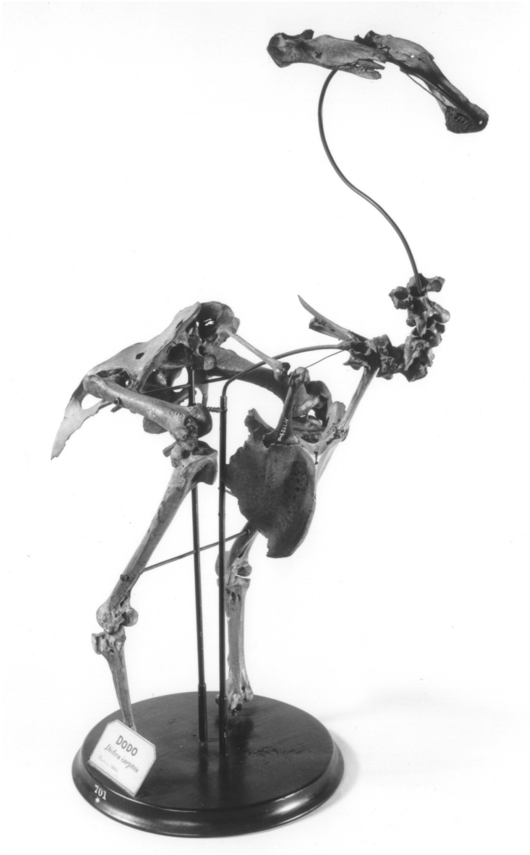
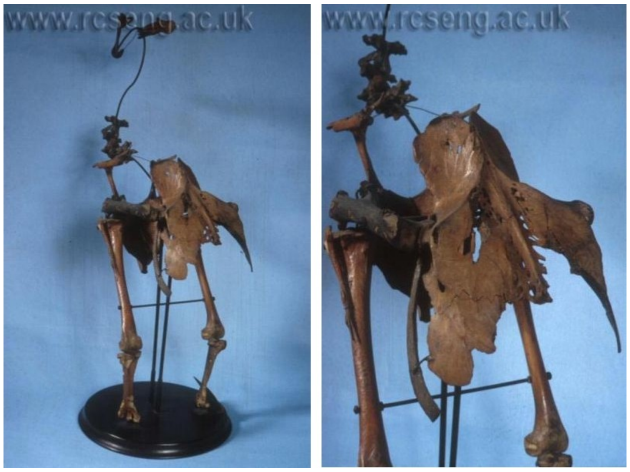
[40] "[A] portion of these were sent to this country and offered for sale, the Council of the College have been enabled to secure, at a moderate cost, some of the most characteristic bones" (*Medical Times and Gazette*, 21st July 1866, p.77, "Museum of the College of Surgeons").

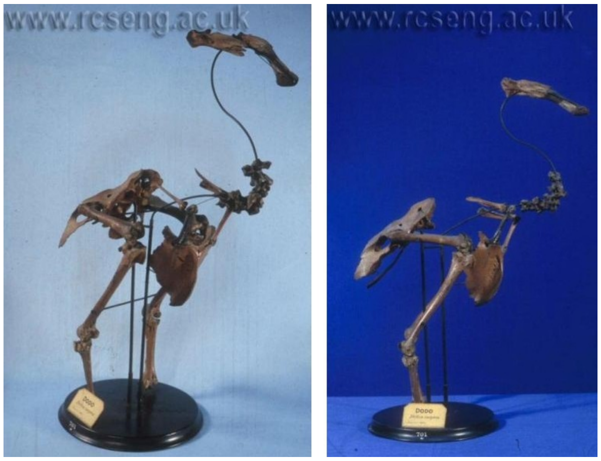
DODO
Didus ineptus
Mauritius 1866



RCSHM/Aves 701 (© The Hunterian Museum at the Royal College of Surgeons).



RCSHM/Aves 701 (© The Hunterian Museum at the Royal College of Surgeons).



RCSHM/Aves 701 (© The Hunterian Museum at the Royal College of Surgeons).

1551 "Casts of the head and foot of the Dodo (*Didus ineptus*)" (Anon. 1865b, p.72). Owen (1845) mentioned the cast: "1551. The cast of the head of the Dodo (*Didus ineptus*, Linn.)" (p.339); "*Presented by the Rev. Dr.* [William] *Buckland, F.R.S.*" (p.342). Now lost.

1551c cast of the Prague beak. Mentioned by Flower (1863, p.8): Specimens added during the past year, Palæontological Series: "1551 c. Cast of beak of Dodo in Prague Museum. [Donor] Dr. A. FRITSH. [*sic*, should be Fritsch (Frič)]". Now lost.

"Skull, sternum, plaster (Copenhagen, Sharpe)" (Lambrecht 1933, p.598). These have probably been lost in a fire (Van Wissen 1995).

The donation book for fossils also lists the following: "Aug 6 1846 N British Museum Casts of the Cranium of the Mastodon Ohioticus of the Sivatherium giganteum and foot of Dodo" (Philippa Mole, pers. comm., 14th June 2012).

In a letter dated 10th October 1866, Nicholas Waterhouse wrote to the Secretary of the Royal College of Surgeons of England, Edward Trimmer, concerning dodo bones (The Royal College of Surgeons of England – Archive of Museum Correspondence, Museum Letter Book Series 2, 1857-1906):

> 5 Rake Lane, Liverpool
> 10 October 1866
> Dear Sir,
>
> A few months ago my friend the Bishop of Mauritius sent be some sets of bones of the Dodo, which had recently been found in Mauritius, and which he requested me to send to some public museum .
>
> At the suggestion of Sir Roderick [Murchison] I have sent one set of the bones to your museum. You will be so good as to enter in your catalogue that they are a donation from the Bishop. I have sent them by the L+NW Railway.
>
> I am yours very truly,
> N Waterhouse
>
> To the Secretary of the Royal College of Surgeons
> Lincoln's Inn Fields
> NL

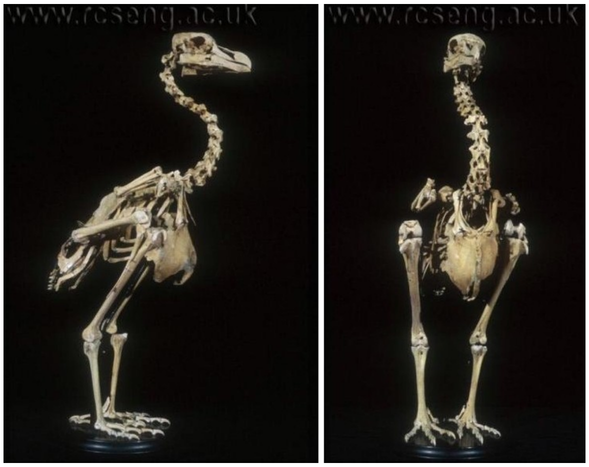
(transcribed by Philippa Mole, pers. comm., 7th June 2012).

R. F. Gore wrote to William Henry Flower (9th November 1866. RCS Museum Letter Book Series 2 (1868-1906) Volume 1, p.100) that he had heard that a number of dodo bones from Mauritius were available for sale and thought that these were foot bones. He offered to find out more details and negotiate a price if Flower was interested (Philippa Mole, pers. comm., 22nd June 2012).

The special display for February 1955 featured the story of the dodo and included the history of the specimen in the College Museum (Wakeley 1955).

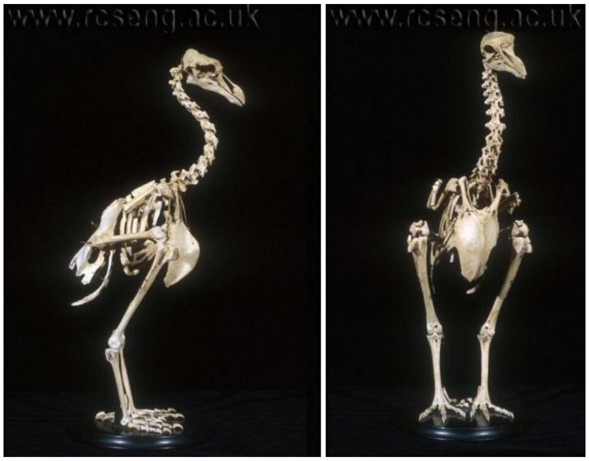
Pezophaps solitaria

RCSHM/Aves 706 mounted skeleton (♂). The skeleton includes left and right ceratobranchials, left epibranchial, six caudal vertebrae (no pygostyle), furcula, right patella (no left), left intertarsal sesamoid (no right), pedal phalanges. It bears "A·1424·d" in black on the right mandibular ramus. Figured: Fuller (2002, p.164), Hume & Steel (2013, fig.2), Parish (2013, fig.6.9), Rodríguez-Pontes (2014, figs.2-5, 7).



RCSHM/Aves 706 (© The Hunterian Museum at the Royal College of Surgeons).

RCSHM/Aves 707 mounted skeleton (♀). It includes left and right ceratobranchials, furcula, left and right patellae, pedal phalanges. Figured: Fuller (2002, p.164), Hume & Steel (2013, fig.2), Parish (2013, fig.6.9), Rodríguez-Pontes (2014, figs.2, 3, 5, 7).

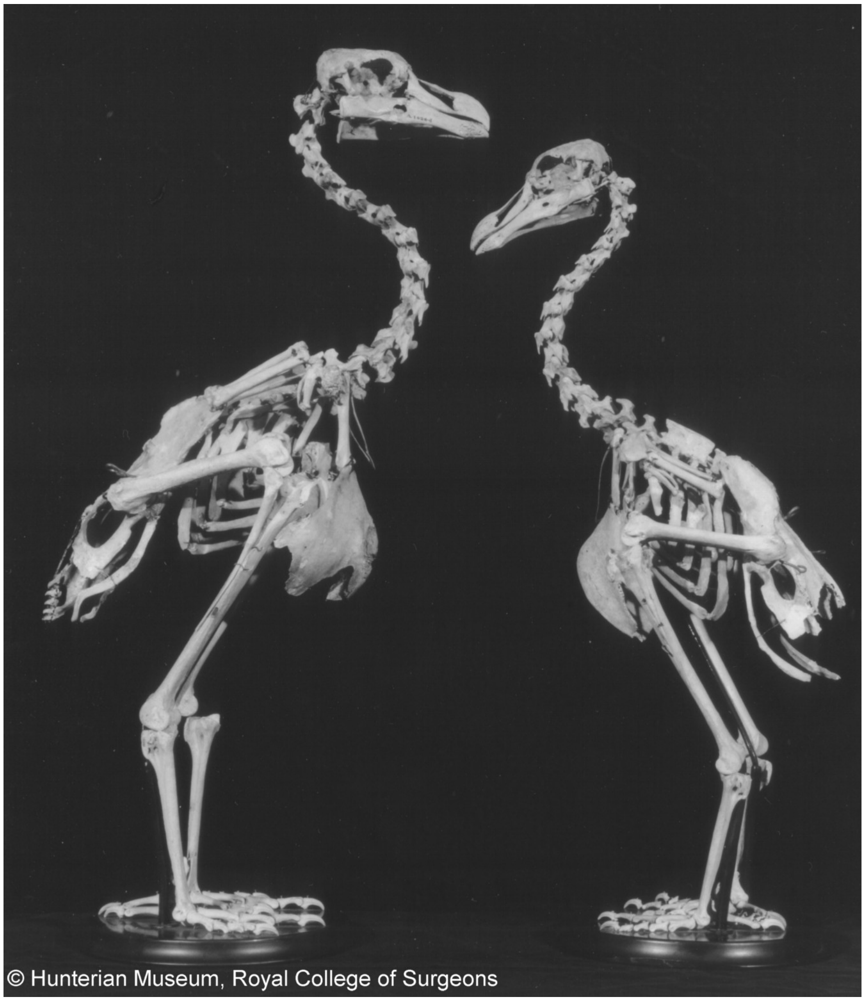


RCSHM/Aves 707 (© The Hunterian Museum at the Royal College of Surgeons).

RCSHM/D 186 endocranial cast. College Museum Collection. Not on public display. Described by Burne (1902, p.137, no. D.186).

1593B "Casts of some of the leg-bones of the Solitaire (*Didus solitarius*)" (Anon. 1865b, p.72). Now lost.

The two associated skeletons (Hume *et al*. 2014b), part of the College Museum Collection, are composed of bones collected by Henry H. Slater on the Transit of Venus Expedition, 1874. They were originally deposited in the collections of the Royal Society of London and were presented to the Hunterian Museum by the Royal Society in 1875. They are currently located in Case 5, Bay 2 of the museum.


© Hunterian Museum, Royal College of Surgeons

RCSHM/Aves 706 and RCSHM/Aves 707 (© The Hunterian Museum at the Royal College of Surgeons).

Below is a selection of extracts from historical catalogues of the collection. Apart from numbers Aves 701, 706, 707 and D 186 (listed above), all other specimens were destroyed during the bombing of the college in May 1941 (Simon Chaplin, pers. comm., 20th March 2008). The bomb fell directly on the Museum of the College in Portugal Street and the ensuing fire destroyed many specimens.

Anon. (1867e):

Middle Museum. Ground Floor.

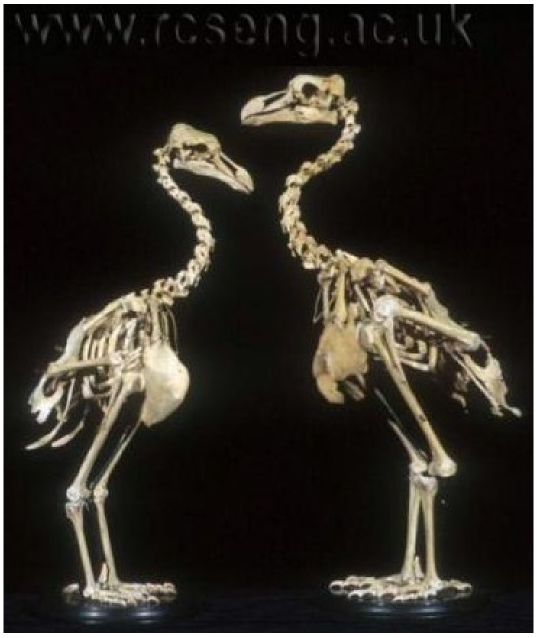
"No. 1551. Casts of the head and foot of the Dodo (*Didus ineptus*) of the Island of Mauritius; and No. 1593 B, casts of some of the leg-bones of the Solitaire (*Didus solitarius*) of the Island of Rodriguez" (p.72).

Anon. (1869b, 1871d):
Middle Museum. Class Aves. Order Cursores. “Genus Didus. [...] 1551” (p.70).
Eastern Museum. Ground Floor:
Case XXXVII. and part of the following contain the Order Cursores [...] Skeletons of the following species are contained in the Collection :–
“No. A. 1424 *a*. An imperfect skeleton of the Dodo (*Didus ineptus*) from the Island of Mauritius” (p.81).
“No. A. 1424 *c*. Bones of the Solitaire (*Pezophaps solitarius*), another extinct flightless bird, allied to the Pigeons, from the Island of Rodriguez. Presented by E. Newton, Esq., 1868. (In the Floor Cabinet.)” (p.82).

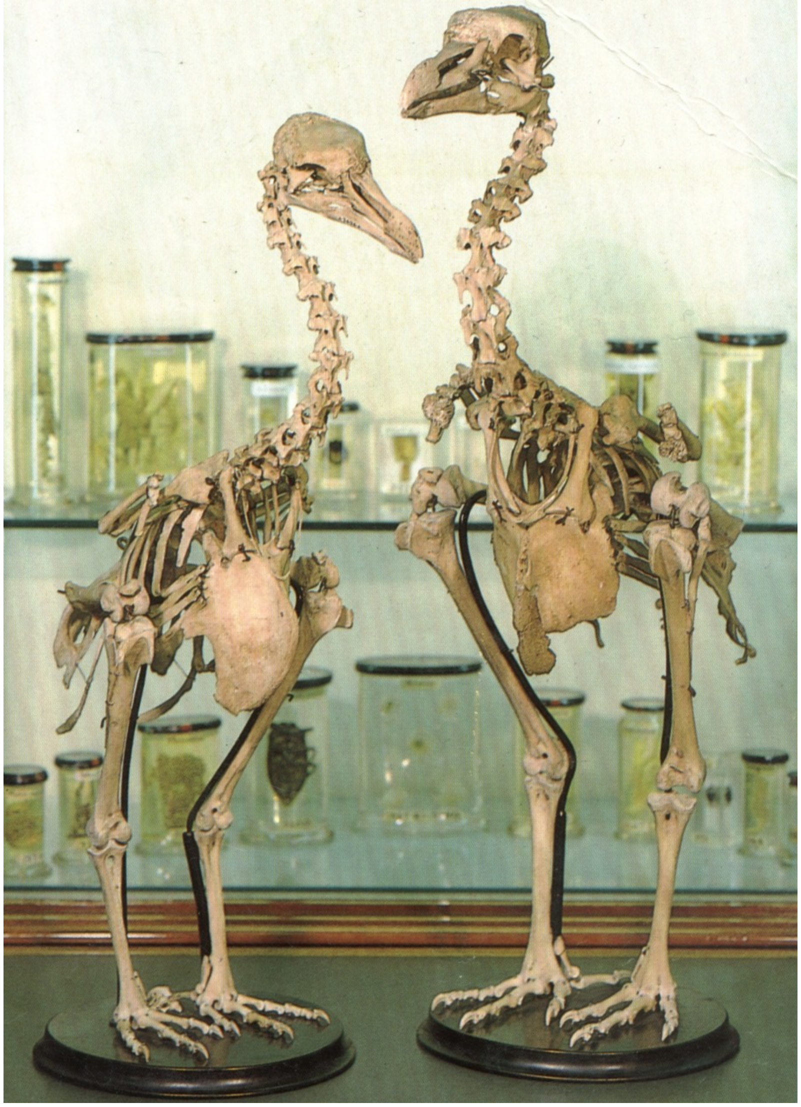
Sharpe (1891b). The “O. C.” numbers refer to MS. additions in the “old catalogue” of osteological specimens, that is the curator’s annotated copy of Owen (1853): The “S. S.” number refers to the “Separate Series” of bones listed in a MS. catalogue (Simon Chaplin, pers. comm., 20th March 2008).
Didus ineptus
701. Skeleton (imperfect). From the Mare aux Songes. O. C. A. 1424A. *Purchased*.
702. Various bones (some exhibited in separate series). O. C. A. 1424B. *Presented by the Bishop of Mauritius*.
703. Cast of head. A. 1424B *a*. From the original in the Oxford Museum. *Purchased*.
704. Sternum (injured). S. S. 1522. *Presented by the Bishop of Mauritius*.
705. Cast of bones of the foot. O. C., A. 1424B *b*. *Purchased*.

Pezophaps solitarius
706, 707. Skeletons of ♂ and ♀. A. 1424D, E. Collected in Rodriguez by Rev. H. H. Slater (Transit of Venus Exped. 1874). *Presented by the Royal Society*.
708. Various bones. O. C., A. 1424F. From Rodriguez. *Collected by the Rev. H. H. Slater*.
709. Various bones. O. C., A. 1424C. *Presented by Sir Edward Newton, K.C.M.G.*

One Wednesday evening in early June 1875 the galleries of the Royal College of Surgeons were closed and many of the specimens, including “a great collection of the bones of the Solitaire, and other recently extinct creatures, from the Island of Rodriguez”, were displayed by William Henry Flower and his wife, Jane Georgiana Flower, to a group of invited people (Anon. 1875b, p.788).



RCSHM/Aves 706 and RCSHM/Aves 707 (© The Hunterian Museum at the Royal College of Surgeons).



RCSHM/Aves 706 and RCSHM/Aves 707 (© The Hunterian Museum at the Royal College of Surgeons).

DF 202/9, Correspondence and papers relating to distribution of collections and preparation of reports 1875-1876, Royal Society Transit of Venus Expeditions, NHMUK General Library Archives:

Solitaire-bones delivered to the R. College
of Surgeons.
Brit. Mus. 28. 2. 76
AGünther

2 Skeletons
3 imperfect skulls
30 isolated vertebræ
2 pelves
1 pubic bone
15 odd ribs
1 sternum (broken)

4 pairs of coracoids
4 " scapulæ
7 " humerus
3 " ulna & radius
1 " radius
1 " & two odd carpals
1 columella
1 furcula
12 pairs of femur
Rings of trachea
9 pairs of tibia
6 " fibula
9 " tarsi
A miscellaneous lot of phalanges.
[in another hand]
Received the above
W. H. Flower
Conservator of the Museum
Feb 29th 1876 of the R. College of Surgeons

Note: the dodo bones belonging to the Bishop of Mauritius, Vincent William Ryan, were probably given to him by Clark (Anthony Cheke, pers. comm., 3rd December 2009).

Woolwich Institute, London

A "small collection" of dodo bones and some *Cylindraspis* material was presented to Archibald Anson by George Clark to be sent to the Woolwich Institute, although he was requested not to present them until some time after his arrival in England (letter from Edward Newton to Alfred Newton, 7th November 1865, 24/3, p.182, *ex* Hume *et al*. 2009). Anson left Mauritius on 7th November and also had with him a batch of dodo bones from Edward Newton for the latter's brother, Alfred (*ibid*.). The fate of these specimens is unknown, although it is recorded that the Royal Artillery Institution, Woolwich, did present bird specimens from British Guiana and human skulls to the British Museum (Natural History) in 1911.

University Museum of Zoology, Cambridge

University Museum of Zoology, Downing Street, Cambridge CB2 3EJ

Anon. (1848b) stated that, on the suggestion of the Secretary of the Royal Society of Arts and Sciences of Mauritius, "it was agreed, that the specimen of Fossil Bones, in the Society's possession, which are believed to be referable to the extinct Birds, be sent to Mr. Strickland, and directions were given to the Curator of the Museum to prepare and deliver them to Mr. [Corsane] Cuninghame, for transmission" (p.xv).

The most perfect set of dodo bones from George Clark's discovery was sent to Owen at the BM. Newton (1866) remarked: "The next perfect set is, thanks to Mr. Clark, in our own possession, and the remainder, which also passed through our hands, are shortly to be disposed of by Mr. Stevens, the well-known natural-history agent" Newton (p.128).

A very extensive series of dodo bones was sent to Alfred Newton by George Clark, including a perfect mandible and a coracoid broken and healed in life (Newton & Newton 1869). Newton had offered his bones to Richard Owen, but Owen refused them. Newton wrote "I hardly know how far I am now justified in keeping the beautiful and interesting specimens which were to be my 'honorarium', since I have been able to do so little for you" (letter from Alfred Newton to George Clark, 26th December 1865, *ex* Hume *et* *al*. 2009). Clark replied in a letter to Edward Newton "With regard to your brother's delicate proposal not to retain the bones, as the business has been taken out of his hands, I have only to reply ignod [?quod] dedi dedi [what I've given, I've given] & I am happy to be able to add to what he has, an ulna and a radius, should they be wanting in his set" (letter from Edward Newton to Alfred Newton, 4th February 1866, 24/3, pp.238-9, quoting a letter from Clark, *ex* Hume *et al*. 2009).

Newton's dodo bones were mounted by John Willis Clark for the brothers Newton (Newton & Newton 1868). This mount (see below) was exhibited along with the skeletons of a male and female solitaire (also mounted by J. W. Clark for Alfred and Edward Newton: Newton & Newton 1868)[41] before the Fellows of the Royal Society when the brothers Newton's paper was read before the aforementioned institution on 11th June 1868. J. W. Clark also exhibited, and remarked on, the dodo and male and female solitaire skeletons at the meeting of the ZSL on 11th November 1869 (Clark 1869). In 1868 J. W. Clark wrote: "I must especially particularise the almost perfect skeletons of a male and female Solitaire (*Pezophaps solitaria*), temporarily deposited by Mr. (afterwards Sir Edward) Newton of Magdalene College, Colonial Secretary of Mauritius. This bird [...] has now been restored to us through Mr. Newton's perseverance in visiting the island and recovering a large series of its bones from the caves in which they had lain buried. We also have acquired on the same terms the most complete known skeleton of the Dodo (*Didus ineptus*) put together from bones obtained by Mr. Newton in Mauritius, as well as casts of most of the separate bones of the Dodo and Solitaire preserved in other Museums; and Professor Rolleston has lately given us photographs of the Dodo's head and foot at Oxford" (quoted in Shipley 1913, pp.267-268).

The ground floor of the "New Museum" in Downing-street housed the Museum of Comparative Anatomy, which contained the skeleton of the dodo (Murray 1875). Alfred Newton's collections and library were accepted by the University of Cambridge on 18th June 1907. The Newton Collection, much of which had been presented during the owner's lifetime, included remains of the dodo and solitaire.

There is a large number of bones in the UMZC collection (415.K), which Kitchener (1993a) and Livezey (1993) examined in their analyses. The dodo and solitaire material was formerly housed in the Ornithological collections (Clark 1891). See Parish (2013, pp.252, 267, 297, 355) for further references to UMZC dodo bones and *ibid*. (pp.248, 251) for further references to UMZC solitaire bones.

It has sometimes been stated that the Sedgwick Museum houses dodo specimens. However, this is not the case; the Sedgwick is a separate museum and houses no dodo remains.

The following listing includes information from the UMZC Specimen Catalogue.

Raphus cucullatus

415.A box: coloured plaster cast of the Tradescant head (made prior to dissection, bearing "H. H. HILL Artist" in ink on base). Presented by Mr. Baker, naturalist of Cambridge. "415$^{\underline{A}}$" written on the forehead. Accessioned: 6th March 1884. With label:

415^{A}
Didus ineptus
Cast of the head in the
Oxford Museum –

See also Parish (2013, p.222). Figured: Parish (2013, figs.5.29, 5.33).

Box: light brown coloured cast of the Tradescant head (bearing '415^{A}' in black ink. Probably not a first generation cast). Uncoloured cast of the Tradescant head (probably not a first generation cast).

W. Kirtland (26th June 1837; E-1757) sent a cast of the Tradescant head to Strickland (Rookmaaker 2010). One cast of the Tradescant head is figured by Newton & Gadow (1910, fig.1 [reproduced: Parish (2013, fig.5.47)]).

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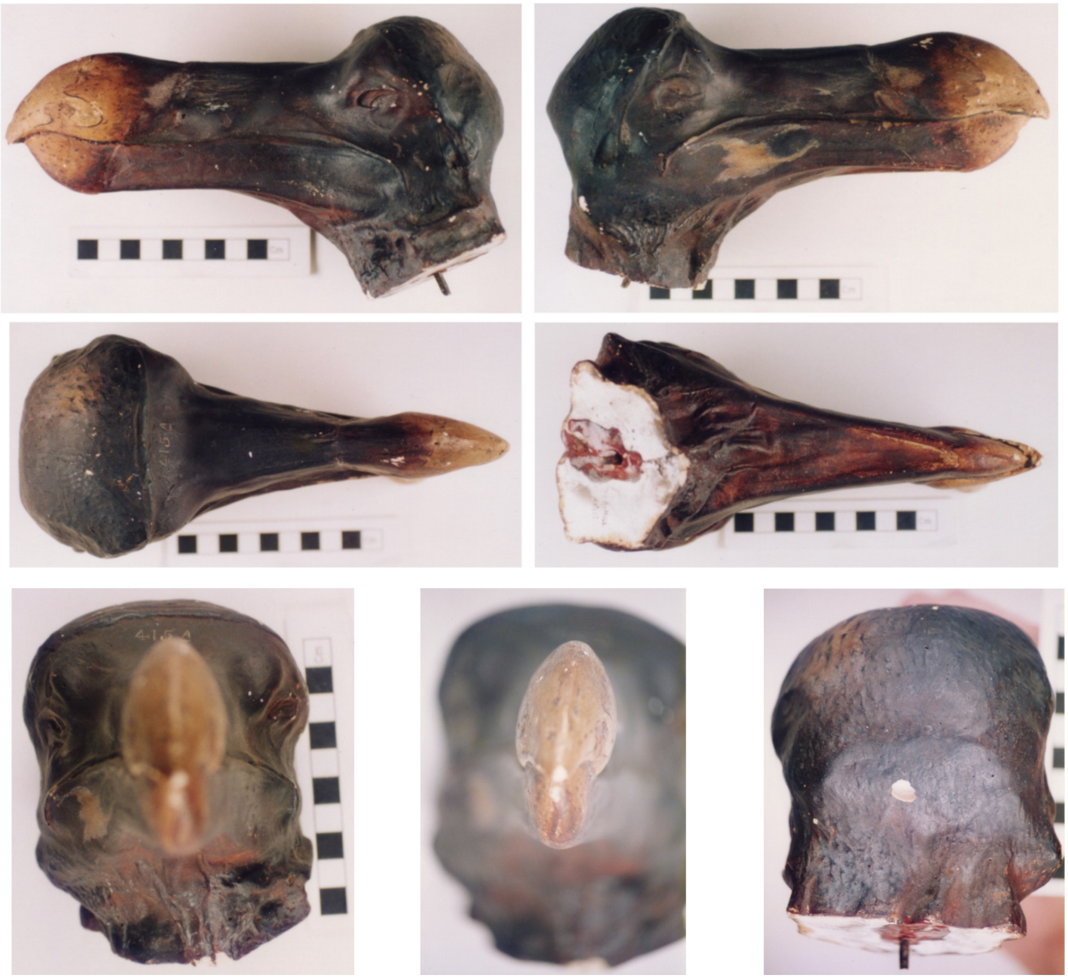
[41] *Contra* Oliver (1891), who stated that the male skeleton was constructed by Alfred Newton.



UMZC 415.A (© E. C. Parish).

415.B box: two plaster casts of the Copenhagen skull and mandible (both mandibles broken). With label:

> DODO
> *Didus ineptus*
> Casts of Head ; Copenhagen

The Danish mineralogist, Johan Georg Forchhammer, wrote to Strickland (28th May 1847; E-0543) from Copenhagen that he hoped to send the cast of the Copenhagen dodo skull shortly and that he had applied to Christian Pingel (1793-1852), the Upper Inspector of Det Kongelige Naturhistoriske Museum, Copenhagen, following the death of Johannes Christopher Hagemann Reinhardt (1776–1845). He also remarked that only Ipsen[42] could create the cast, but that he had been unable to until then. In a later letter to Strickland (June 1847; E-0544) he added that the cast of the dodo was to be brought over by Puggaard,[43] a young geologist (Rookmaaker 2010).

In a letter to Strickland (9th July 1847; E-1204), written from 20 Broad Street, Golden Square, London, Bonaparte stated that he expected to send a cast of the Copenhagen skull to Strickland the following day (Rookmaaker 2010).

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[42] Possibly Rasmus Peter Ipsen (1815-1860), terracotta worker in Copenhagen.

[43] Probably Hans Christopher Wilhelm Puggaard (1823-1864). Puggaard visited England in January 1849.

William Cecil Fowle, writing from St. Petersburg, informed Strickland (letter of 16th July 1846; E-0562) that he had met Brandt and had visited Moscow, and that he still had the dodo to be taken back to Copenhagen (Rookmaaker 2010). Fowle, of Ewyas Harold, Hereford, later wrote to Strickland (29th January 1847; E-0564) enquiring whether the latter had received acknowledgement of the cast of the dodo from Kruger of Copenhagen (Rookmaaker 2010).

A cast of the Copenhagen skull and mandible was given to Alfred Newton by Reinhardt (Newton & Newton 1869).

415.C box: plaster cast of the Prague beak, given to Alfred Newton by Antonn Frič (Newton & Newton 1869). With label:

415 ^{C}
DODO
Didus ineptus
Cast of Beak ; Prague

415.CC box: uncoloured cast of atlas. With label:

415 ^{CC} DODO (BM I92
Didus ineptus
Cast of atlas: made at
the British Museum
from the original (lent
for the purpose) at Cambridge.
See letter from H. Woodward,
June 6, 1900.

415.D box: uncoloured plaster cast of the BM foot. With label:

DODO 415 ^{D}
Didus ineptus
Cast of foot ; British Museum

415.E plaster cast of the Tradescant foot. A second specimen of 415 (cast of the Tradescant foot). Formerly the property of Hugh Edwin Strickland.

415.EE two wax casts[44] of the Tradescant foot (cf. lithographs in Owen (1846, pls. xlix, l)). "These two specimens appear to be duplicates of parts of 415.E – viz. the fused metatarsals and the posterior metatarsal (wax casts)" (UMZC Specimen Catalogue). Formerly the property of Hugh Edwin Strickland. One, in a box, has the hallux broken off, digit II broken off and most of digit IV broken off and missing. At some period the shaft of the tarsometatarsus has become bent (the distal part slightly curved cranially). Acquired per Henry Nottidge Moseley from Mr. Clark[e] of Saffron Walden (see Saffron Walden Museum), according to the register. Presented by "Mr Clark[e] of Saffron Walden" (Anon. 1862, p.36). Accessioned: 8th December 1883. With label:

415
DODO
Didus ineptus
Cast of Foot ; Oxford

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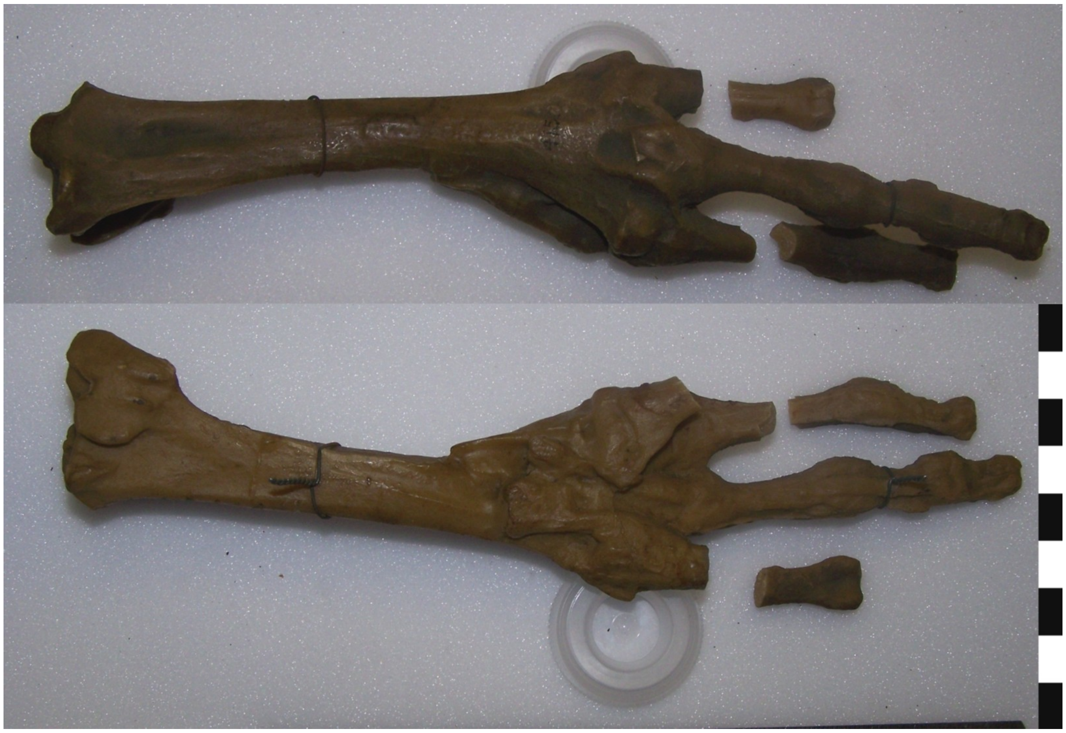
[44] However, the present author only saw one cast.



UMZC 415.EE, dorsal and ventral views (© Jolyon C. Parish, December 2008).

415.F box: articulated cast of the Tradescant foot bones (bearing "415^{K}" in ink). With label:

DODO	415 ^{F}
Didus ineptus	
Cast from Original in	
Oxford Museum	

UMZC Archives: V2.307.1 (on notepaper headed: "Anatomical Department, Museum, Oxford"):

Oct 18-83

My dear Clark
[...] I have just had
a good cast made of our Mesoplo
don layardii beak lower jaw and
tusks. and will exchange one with

V2.307.2:

you if you like also foot
of the Dodo ~~cast~~ all bones cast
separate and articulated .
[...]
yours truly
H N Moseley

UMZC Archives: V2.308.1 (on notepaper headed: "Anatomical Department, Museum, Oxford"):

Oct 22 83

My dear Clark
I will send you the cast
of Mesoplodon as soon as I
can get one coloured and will
let you know what it cost
as soon as I can go over the
accounts with Prestwich We have
had a lot of casting done. I wonder

V2.308.2:

you do not want the
dodos foot I believe ours
is the only set of phalanges
existing except that of the
British Museum which will
never have the skin removed
of course. The old model of
our foot was taken before the
bones were separated and cleaned
yours truly
H N Moseley

UMZC Archives: V2.316.1:

Sp. Fund.
Prof. Moseley
=
£3.0.0
=
7 Mar. /84.
=

UMZC Archives: V2.316.2 (printed and handwritten receipt):

N^{o}.36 March 7. *18*84
Received of the University Museum of Zoology Cambridge
the sum of Three *Pounds*
– *Shillings and* – *Pence*
for models of Mesoplodon and head and
foot of Dodo.
£3$\underset{..}{0}\underset{..}{0}$ Moseley [in pencil]

415.FF framed black-and-white photographs of the Tradescant skull and foot skeleton. Late nineteenth or early twentieth century. “(Dodo) Didus ineptus Photograph of the Oxford skull”. “Didus ineptus (Dodo) Photograph of the Oxford foot”.

415.G (other nos.: 809b) Box: sternum (damaged distally, lacking left costal region) articulated with right scapulocoracoid and fused proximal end of clavicle and left scapula and coracoid. “415 ^{G}. *Didus ineptus* DODO”. Acquired from Edward Newton.

415.H (other nos.: 809a; 17/Rap/2/a/1). Mounted skeleton (see Anatomy for measurements). Presented to the University of Cambridge by Edward Newton (Shipley 1913). It was assembled under the direction of Alfred and Edward Newton, *c*.1889-92 (Van Wissen 1995, Kallio 2005). Bones added from Thirioux collection (415.KK) to the mounted skeleton: three caudal vertebrae, proximal and distal phalanges of digit II of the right wing, eight ungual pedal phalanges. The skeleton also has left and right jugal arches, palatines and pterygoids). Bears white writing “415$^{\underline{H}}$” on the right mandibular ramus and on the mount. Contains: beak (lacking distal end), left and right jugal arches, left and right palatines, left and right pterygoids, cranium (damaged), atlas, axis, 3rd-14th cervical vertebrae, notarium, centrum of 18th vertebra, three caudal vertebrae (upside down), left scapulocoracoid with fused clavicle (scapula slightly damaged distally), right scapula, right coracoid, right clavicle, sternum, left and right humeri, left and right ulnae, left and right radii, left and right carpometacarpi, right alar phalanges 1 and 2 of digit II, pelvis (synsacrum with rib facets on 19th vertebra only), left and right femora, left and right tibiotarsi, left and right fibulae, left and right tarsometatarsi, left and right first metatarsals. Ribs, pedal phalanges – left foot: I, I: 1, 2; II: 1-3; III: 1-4; IV: 1, 2, 5; right foot: I: 1, 2; II: 1-3; III: 1, 2, 4; IV: 1, 5. The cranium is damaged, as are some of the other bones. Most of the bones are female (according to Livezey’s 1993 data, table v). There is a discrepancy between the skeleton figured by Newton & Gadow (1910, fig.1) and the skeleton at Cambridge as it is now in that the former shows phalanx 3 of digit III of the right foot, whereas the latter does not. The standing height of the skeleton is around 54-55cm. UMZC 415.H was 3D-scanned by Katharine Hartley and her colleagues at CARET (Centre for Applied Research in Educational Technologies, Cambridge) in December 2002. The skeleton was placed on a turntable and scanned at 20° intervals until it had been rotated 360°. The resulting images were put together and edited to create a 3D model. (http://www.caret.cam.ac.uk/news/photos_dodo.htm).

The skeleton was displayed in the exhibition “Discoveries: Art, Science and Exploration” held at Two Temple Place, London, from 31st January to 27th April 2014 (http://www.campaign.cam.ac.uk/news/discoveries-university-of-cambridge-museums-exhibition-in-london,

, http://www.fitzmuseum.cam.ac.uk/discoveries/

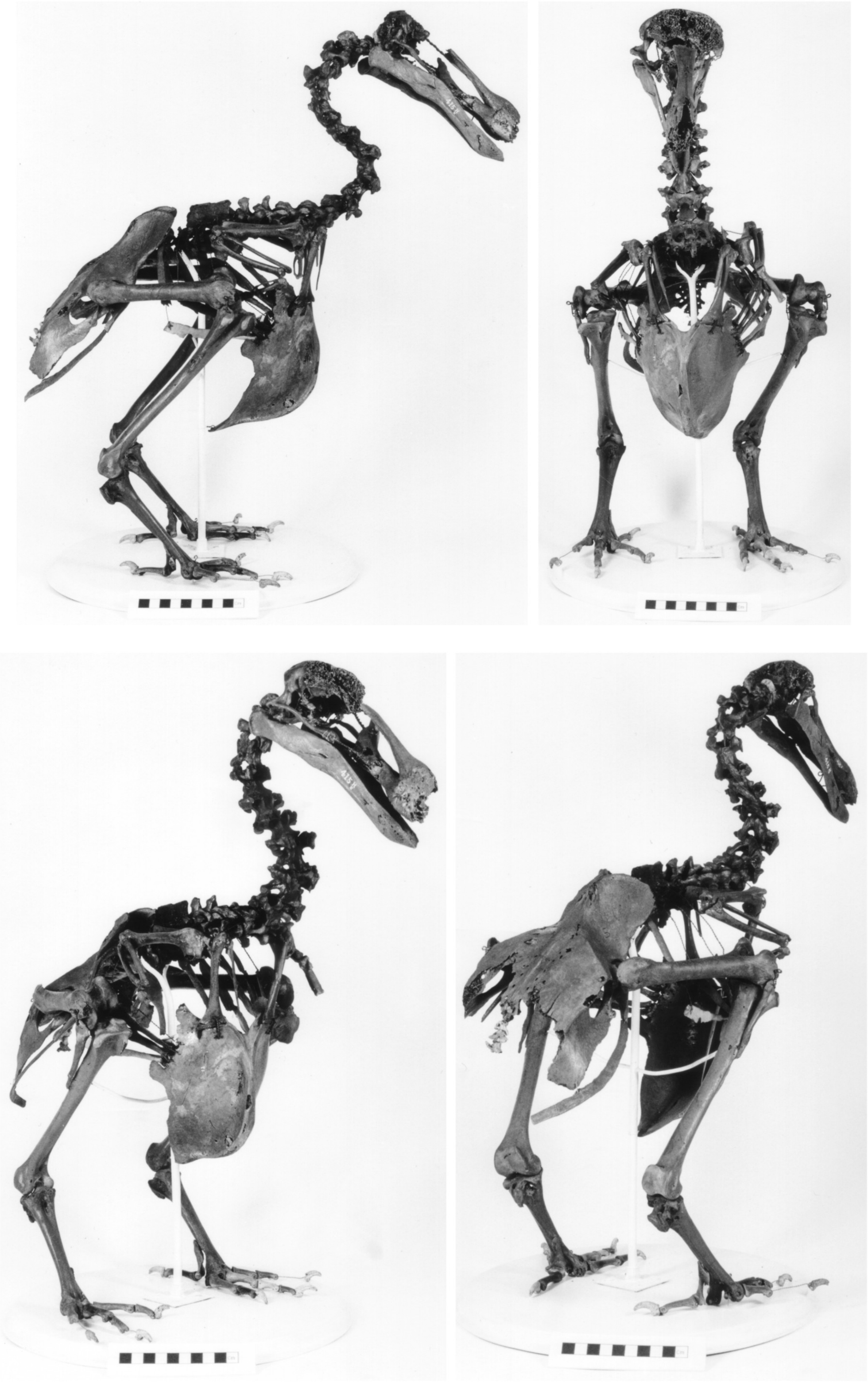
[accessed 6 February 2014]), and in the same exhibition, held at the Fitzwilliam Museum, Cambridge, from 3rd July to 27th July 2014 (Elliott 2014).

See 805.13 for mould of eighteenth vertebra. See also Parish (2013, p.380n9). Figured: Newton & Gadow (1910, fig.1 [reproduced: Parish (2013, fig.5.47)]); Kallio (2005, endpapers, p.28, 29, 32). Eighteenth vertebra figured: Newton & Gadow (1893, pl.xxxvii, figs.2a-2c). With labels:

415. H
Raphus
cucullatus
Mounted
UMZC 72/3

MUS. ZOOL. CAMBRIDGE
FAM. RAPHIDAE
Sp. Raphus cucullatus
CAT. NO. 17/Rap/2/a/1

DODO
Didus ineptus
Mauritius Dep. E. Newton M.A.
Magd. Coll.



UMZC 415.H (© UMZC).

415.I framed coloured picture from Von Frauenfeld (1868b, taf.1).

415.J box: caudal part of cranium (sectioned longitudinally, bearing '415J' in ink). "Found in museum stores with Solitaire bones"; identified by Graham S. Cowles (BM(NH)), 12th September [*sic*] 1976 (UMZC Specimen Catalogue).

> BRIT. MUS. (NAT. HIST.)
> Incomplete cranium
> Raphus cucullatus
> = Didus ineptus G. Cowles

> INCOMPLETE CRANIUM OF DODO
> RAPHUS CUCULLATUS
> (= Didus ineptus)
> found in with Solitaire bones
> 12TH August 1976.
> G. S. Cowles

415.K fifteen boxes of subfossil bones; "Some bones are not Dodo, some are mammal" (UMZC Specimen Catalogue). Sauzier Collection. Mare aux Songes. Accessioned: 30th April 1908.

Vertebrae "Didus ineptus Dodo Vertebrae 415K"

Tarsometatarsi "415K Didus ineptus (Dodo) METATARSALS"
29 left (one bearing label '5') [13s 16d]
30 right [15s 15d]
three left (damaged proximally) [1s 2d]
six left (lacking proximal extremities) [5s 1d]
left (lacking proximal extremity and damage to trochleae II, IV) [d]
left (lacking proximal extremity and trochlea IV) [s]
distal end of left (damaged distally, lacking medial edge) [s]
six right (damaged proximally) (one bearing label '9') [1s 5d]
right (damaged proximally and distally to trochleae) [d]
seven right (lacking proximal extremities) [3s 4d]
right (lacking proximal extremity, damage caudally and to trochleae IV) [d]
right (lacking trochleae II, trochlea III damaged) [d]
right (lacking trochleae II, III) [d]
right (lacking trochleae) [s]
distal ~half right [d]
distal end of right (lacking trochleae II, IV and medial edge) [s]
three shafts of right [1d 2?]
[Included in the above are the longest and shortest tarsometatarsi selected by Kitchener (one left [d], one right [d]). Also included in the above are one left and one right showing holes for the attachment of tibiotarsi, pedal phalanges and first metatarsals for mounting]

Tibiotarsi "Didus ineptus (Dodo) Tibiae 415K"
five left
three left (damaged proximally)
eight right
right (damaged proximally)
[Included in the above are the longest and shortest tibiotarsi selected by Kitchener (two left)]

Tibiotarsi "415K Didus ineptus Dodo Incomplete Tibiae"
left (lacking proximal extremity, damaged distally)
left (lacking proximal extremity and lateral condyle)
left (lacking proximal extremity and medial condyle, damaged distally)
right (damaged proximally, lacking distal extremity)
proximal ~½-⅔ left

two proximal ~ ½-⅔ left (damaged proximally)
proximal ½-⅔ right
caudal portion of proximal ½-⅔ right
five distal ⅓-⅔ left
distal ~⅔ left (damaged distally)
distal ~⅔ (lacking lateral condyle)
distal ~half left
seven distal ½-⅔ right
two distal ⅔ right
two distal ends of left
distal end of left (lacking caudal portion)
distal end of right
eleven shafts of left (one is split longitudinally and is in two halves)
eleven shafts of right
three fragments of right shaft
two fragments of ?left shaft
fragment of ?right shaft
shaft fragment (splinter)
proximal end of left tarsometatarsus (damaged proximally)

Tibiotarsi:
seven left
three left (lacking proximal extremities)
left (lacking proximal extremity and slightly damaged distally)
left (lacking distal extremity)
two left (lacking distal extremity and damaged proximally)
left (lacking lateral condyle)
four right (damaged proximally)
three right (lacking proximal extremities)
right (lacking distal extremity)
right (damaged proximally and distally)
two right (damaged proximally and lacking distal extremity)

nine right (one with label ‘2’)
four left (one with label “next longest” in black ink)
three right (damaged proximally)
right (damaged distally, damage to medial cnemial crest)
two right (damaged proximally, lacking lateral condyle)
two left (damaged proximally)
left (damaged proximally and distally)
left (slightly damaged proximally; with label ‘1’)
small fragment of proximal end

Femora “Didus ineptus (Dodo) Femora 415^{K}”
twenty left (one bearing label ‘4’)
fifteen right (one bearing label ‘3’)
left (damaged proximally and distally)
right (damaged proximally, slightly damaged distally)
right (damaged proximally and lacking distal extremity)
right (lacking proximal and distal extremities, but has most of the head)
two left shafts
right shaft
shaft fragment
shaft splinter
[the above include longest and shortest as selected by Kitchener (one left, one right)]

Pelves “Didus ineptus (Dodo) Pelves 415^{K}”
one damaged caudally
six damaged cranially, damaged caudally
two damaged cranially (left side), damaged caudally

Pelves “Didus ineptus (Dodo) Pelves 415^{K}”
three damaged caudally
four damaged cranially, damaged caudally
two damaged cranially (left), damaged caudally
two damaged cranially (right), damaged caudally
small fragment of iliac blade

Pelves “Didus ineptus (Dodo) Fragments of pelves 415^{K}”
nineteen left acetabular region (fragmentary)
twelve right acetabular region (fragmentary)
24 fragmentary synsacra
fragment of ?pelvis
three damaged cranially and caudally, lacking left acetabular region
damaged cranially and caudally, lacking right acetabular region
fragment of caudal extremity of sternum
?sternal fragment

Vertebrae “Didus ineptus Dodo Vertebrae 415^{K}”
notarium (damaged dorsally, damage to extremities of ventral processes)
synsacrum

Box: ten cervical vertebrae (all damaged): 3rd cervical, six mid-cervicals (5-7th, five bearing ‘5’ in ink), one 8th or 9th, one 5th-7th (very damaged), one 5th-7th (very damaged, bearing ‘5’ in ink). With label:

> Didus ineptus 415.K.
> MARE AUX SONGES MAURITIUS. part
> E COLL. TH. SAUZIER (REPORT FOR 1891, P.10; 1892, P.9
> *See Trans. Zool. Soc. Vol. 13, p. 281;*
> ~~*Ann. Sci. Nat. (8) Zool., 2, 1896, p. 123*~~

Box: sixteen cervical vertebrae: four 6th or 7th cervicals, one cf. 7th cervical, eleven 8th or 9th cervicals.
Box: 22 cervical vertebrae: eleven ?7th-9th cervicals, six 6th or ?7th cervicals, one 11th, two 12th, two 11th or 12th (very damaged).

Vertebrae “Didus ineptus (Dodo) Vertebrae 415^{K}”
String: eight ?9th cervicals. With label (a):

> E Mus. Acad. CANTABRIGIÆ. 415.K.
> Didus ineptus
> ?9th vertebrae
> MARE AUX SONGES MAURITIUS.
> E COLL. TH. SAUZIER (REPORT FOR 1891, P.10; 1892, P.9
> *See Trans. Zool. Soc. Vol. 13, p. 281;*

String: six 6th cervicals (bearing “No 6” in ink; one, with ‘N’ in black ink, has a pathology)
String: fourteen 7th cervicals (label as (a) but with “7th vertebrae”; one has pathology)
String: five 10th cervicals (with label “No 10.”; bearing ‘10’ ‘N’ in ink)
String: three 7th cervicals (with label “No 7.”; bearing ‘7’ ‘N’ in ink)
String: twenty 9th and 10th cervicals (label as (a) but with “9th & 10th vertebrae”, “*See Trans. Zool. Soc.*

Vol. 13, p. 281; 296")
String: two 5th cervicals (with label "No 5")
String: two 12th cervicals (with label "No 12.", 'S.' in ink)
String: eleven 6th cervicals (label as (a) but with "6th vertebrae")
Fragmentary notarium (damage to dorsal and ventral processes)
String: three 13th cervicals (label as (a) but with "13th vertebrae")
Rod: seventeen 4th cervicals (label as (a) but with "4th vertebrae")
Two sheets of handwritten notes: "Bones of Dodo t [*sic*] be mounted for Mauritius Commission"; "Dodo bones to be put in our skeleton for Mauritius Commission"

Vertebrae "Didus ineptus (Dodo) Vertebrae 415K"
Rod: six 3rd cervicals (with label as (a) but with "3rd vertebrae")
String: two 4th cervicals (with label: "No 4")
Rod: nineteen 5th cervicals (with label as (a) but with "5th vertebrae")
String: nine 8th cervicals (with label: "No 8"; '8' 'N' in ink)
String: sixteen 8th cervicals (with label as (a) but with "8th vertebrae")
String: fourteen 9th cervicals (with label: "No 9")
String: six 11th cervicals (with label: "No 11"; '13' 'S' 'N' in ink)
String: twelve 11th and 12th cervicals (with label as (a) but with "11th & 12th vertebrae")
Cranial portion of notarium (15th + 16th vertebrae)

Box: complete mandible (with label: "415 K Lower jaw")
Box: mandible fragments: two specimens of symphysis with distal left ramus, two specimens of symphysis with distal right ramus, symphysis, partial symphysis with distal left ramus, four specimens of proximal end of left ramus, three specimens of proximal end of right ramus, left ramus (lacking symphysis), nine middle portions of left ramus, seven middle portions of right ramus, fragment (not dodo?). With label: "415 K Lower jaw fragments".
Box: mandible fragments: three specimens of symphysis with distal left ramus, three specimens of symphysis with distal right ramus, five specimens of proximal left ramus, five specimens of proximal right ramus, partial symphysis with distal left ramus. With label: "415 K Lower jaw fragments".
Box: carpometacarpus (cf. Ardeidae; not *Raphus*). With label: "415 K carpo-metacarpus incomplete Not Dodo".
Box: fragmentary rostrum (beak). With label: "415 K skull fragment".
Box: four left humeri. With label: "415 K Humeri".
Box: three left scapulae (one near complete, the others lacking distal extremities), four right scapulae (lacking distal extremities). With label: "415 K Scapulae".
Box: left coracoid, left scapulocoracoid (lacking scapula), right coracoid (lacking sternal extremity), right scapulocoracoid (lacking distal extremity and distal scapula). With label: "415 K Coracoids".
Box: right ulna and radius (wired together; ulna damaged proximally). "415 K radius + ulna".
Box: four sternal ribs, three flat rib fragments. "415 K Ribs".
Box: two vertebral ribs, one sternal rib, non-*Raphus* bones. With label:

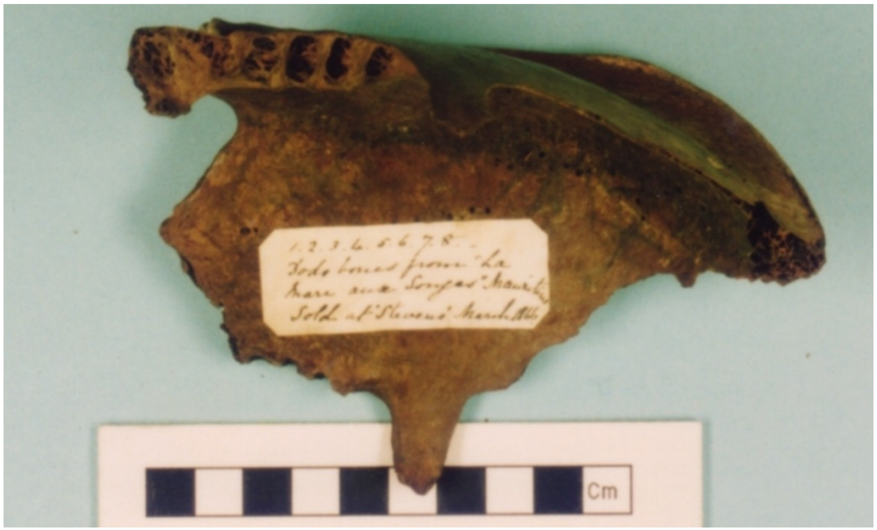
These bones was [*sic*] found 415 K
with the Dodo Bones
June 3. 1908
E. H. Lane

Sterna: "415K Didus ineptus (Dodo) Sterna"
near complete sternum
sternum (lacking right costal region)
six fragmentary sterna
sternum (lacking left costal region, damaged caudally)
cranial portion of sternum
two specimens of cranial portion (lacking left costal region)
cranial portion (lacking right costal region)

cranial portion (damage to left costal region). With label:

1. 2. 3. 4. 5. 6. 7. 8.
Dodo bones from "La
Mare aux Songes" Mauritius
Sold at 'Stevens' March 1866

Six fragments of sternum



UMZC 415.K fragmentary sternum (© E. C. Parish, 23rd February 1996).

415^{K} Didus ineptus
Transversely sectioned left femur, left tibiotarsus, right tarsometatarsus. Prepared by A. Kitchener 1990 (Loan 617). These had been selected as being as close as possible to the mean measurements for length and diameter by Andrew Kitchener and were sectioned at mid-shaft (Kitchener 1993a).

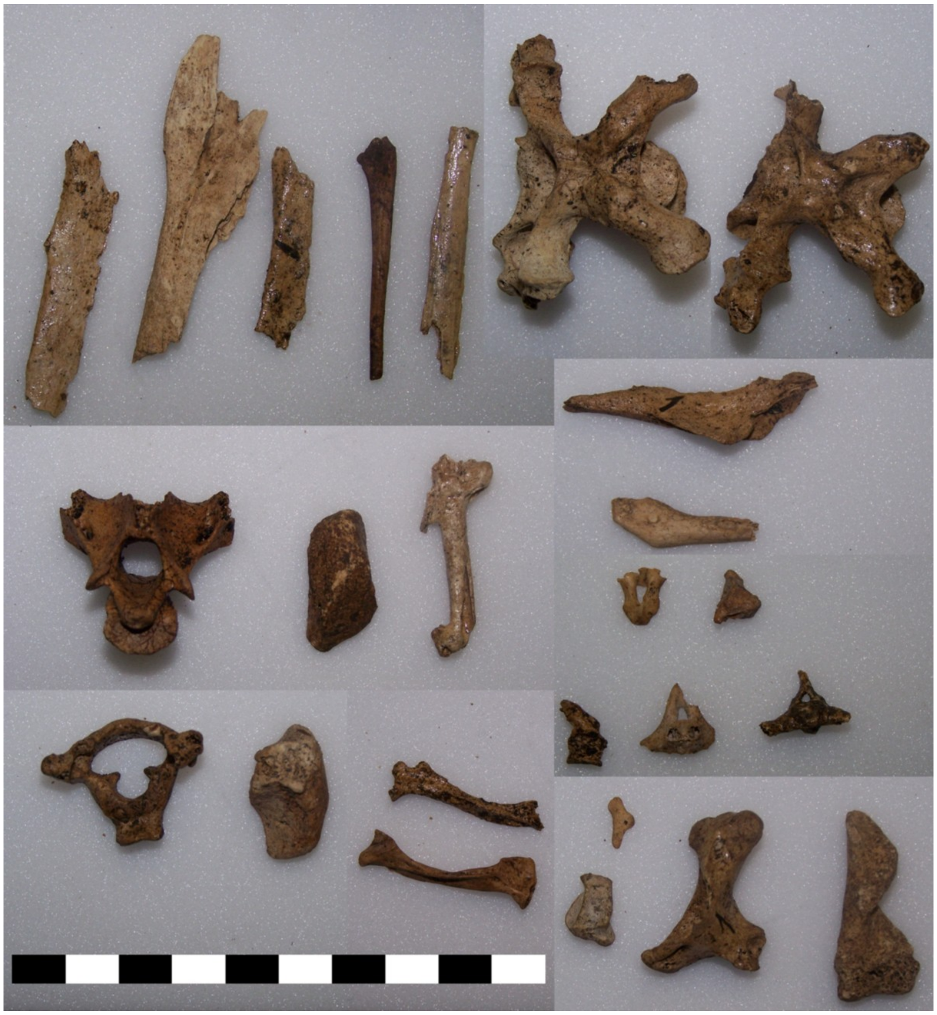
415.KK bones collected by Etienne Thirioux. Donated by Thirioux. Accessioned: 30th April 1908. With label:

DODO 415 KK
Didus ineptus
MAURITIUS
E. THIRIOUX REG. APRIL 30, 1908. (15.a.)

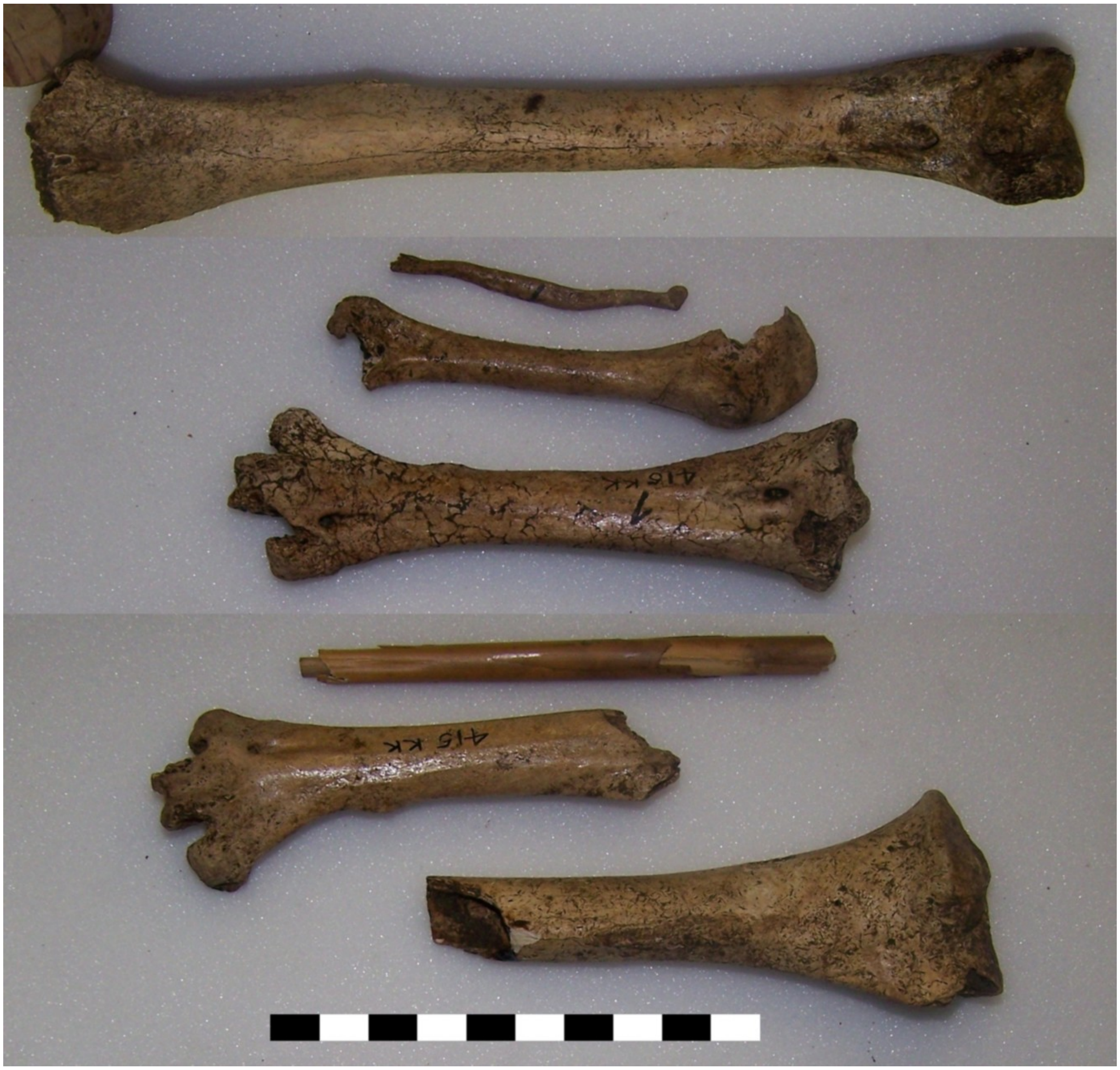
Jugal bar (in ink: '1') *
Left quadrate (lacking orbital process)
Two pterygoids (complete right and damaged ?left)
Fragment of left palatine
Fragment of middle portion of ?left mandibular ramus
Atlas
Axis
Two mid-cervical vertebrae (?6th, ?7th)
Five caudal vertebrae
Three rib fragments
Left humerus (damaged proximally and distally; bearing '1' in ink) *
Distal end of radius
Right radiale

Left carpometacarpus (lacking most of metacarpal III, damaged proximally and distally)
Phalanx of digit III of wing
Left tibiotarsus (lacking proximal extremity) *
Proximal end of right tibiotarsus (damaged) *
cf. right patella
cf. intertarsal sesamoid
Left tarsometatarsus (damaged proximally and distally) *
Right tarsometatarsus (lacking proximal end) *
Left first metatarsal
Bone fragment (? proximal ?clavicle fragment) [perhaps the "sommet lateral" listed in Letter 33A of the Thirioux-Newton Correspondence]
Reed / plant stem fragment in with the bones *

Bones annotated '*' are kept in the same box. These have similar colouration and preservation and could be the "various parts of the same specimen" listed by Thirioux (Letter 33A, Thirioux-Newton Correspondence, UMZC, synopsis). If so, the individual was probably male (based on tibiotarsus and tarsometatarsus lengths and Livezey's (1993, table v) data). Of the other items listed, four pedal unguals are missing, the "os pharinx" is probably the palatine fragment and the "phalange metacarpien" is probably the phalanx of digit III of the wing. See also Parish (2013, p.363), Transcriptions. See also 415.H.



UMZC 415.KK (© Jolyon C. Parish, December 2008).



UMZC 415.KK (© Jolyon C. Parish, December 2008).

805.13 (other nos.: 809a) Mould of eighteenth vertebra from 415.H. Original collected by Théodore Sauzier. Collection of Théodore Sauzier, acquired from Edward Newton. Accessioned: 3rd October 1893. Original bone figured: Newton & Gadow (1893, pl.xxxvii, figs.2a-2c).

Letter from Edward Newton to Sidney Frederic Harmer. UMZC Archives: V3.088.1. [Reg. Oct. 3, 1893]:

Cavenham Hall
Soham
16th. Aug. 1893
Dear Mr. Harmer
I return Mr. Bedow's
letter –
I do not think his terms are

extravagant –
as you write, the Cambridge
Museum has profited by getting
the original, and certainly ought
to contribute towards the expense
of the making the casts –

V3.088.2:

I therefore think that if I pay
for half of their cost, and one set
is given to the British Museum
and another to Sauzier, the
remaining four the sets ought to be
mine to disperse as I please, or
it would be a very one sided
arrangement so far as I am
concerned – I have already
incurred considerable expense
on account of the large collection
of these and other bones which the
Cambridge Museum has retained

in [?] the great additions
[?] which have been made to the
mounted skeleton of the Dodo,
which I gave the Museum many
years ago –
I remain
yours faithfully
Edward Newton

Letter from Edward Newton to Sidney Frederic Harmer. UMZC Archives: V3.89.1. [Reg. Oct. 3, 1893]:

23 Wellington Esplanade
Lowestoft
30th Sept. 1893
Dear Mr. Harmer
I am very glad that the casts
have turned out so satisfactorily,
and that you have the moulds,
I trust that you may be able to
dispose of some of casts in the way of
exchange for other things for the
Museum –
I enclose a cheque for half
the expense viz £3–15..0–

V3.89.2:

I have not heard a word from
Sauzier as to the disposal of the
bones to be sent back, I fear he
must be ill – I have written
to him again and told him also
that we had the casts of the
unique bone for him .
as I soon as I hear from him I
will let you know.
Yours very sincerely
Edward Newton
S. F. Harmer Esq.

Letter from Edward Newton to Sidney Frederic Harmer. UMZC Archives: V3.090.1:

23 Wellington Esplanade
Lowestoft .
20th. Oct. 1893
Dear Harmer
I heard from Sauzier
at last. [?]!
He wishes the bones &c and
the casts to be sent to him
Boulevard de Courcelle
6
Paris.
There are also a dozen

V3.090.2:

copies of Gadow's &
my paper, (P.Z.S)
about which I am writing
to Gadow, to be sent to
him, perhaps they might
go in the same box with
the casts, and put
into the big trunk
which I presume
you are returning

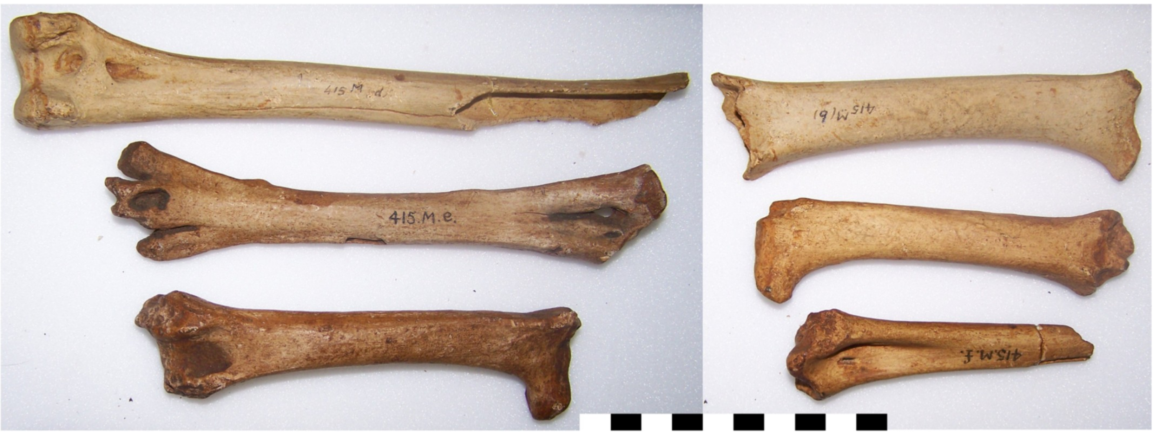
to Sauzier –
Yours faithfully
Edward Newton

Note: tarsometatarsi: s = single distal plantar opening, d = double distal plantar opening

Pezophaps solitaria

415.L (a-e) casts of Paris (Museum of the Jardin des Plantes) specimens: "415L (a)" cranium, "415L (b)" sternum, "415L (c)" left humerus, "415L (d)" left femur, "415L (e)" right tarsometatarsus (stated to be a left tarsometatarsus in the UMZC Specimen Catalogue). Replicas of the five 1786 Paris specimens were given to Alfred and Edward Newton by Alphonse Milne-Edwards (Newton & Newton 1869).

415.M a-f box: two sets of casts of Andersonian Museum specimens: "415.M.(a)" two casts of ♀ right femur (no.14 of Strickland 1853), "415.M.(b)" two casts of ♂ right femur (lacking proximal and distal extremities; no.8 of Strickland 1853), "415.M.c." two casts of ♀ left femur (lacking distal extremity; no.15 of Strickland 1853), "415.M.d." two casts of distal ~½ ♂ left tibiotarsus (no.10 of Strickland 1853), 415.Me casts of ♂ left tarsometatarsus (no.12 of Strickland 1853), "415.M.f." two casts of proximal end of ♂ right tarsometatarsus (no.13 of Strickland 1853). Accessioned: 1st August 1868. Source: Alfred Newton. The casts were given to Alfred Newton by William Jardine (Newton & Newton 1869). See also Parish (2013, p.230).



UMZC 415.M: *top row*: d, b; *middle row*: e, c; *bottom row*: a, f (© Jolyon C. Parish, December 2008).

415.N box: cast of left tarsometatarsus (bearing "Pezophaps solitaria 415^{N} Rodriguez" in ink) (stated to be a right tarsometatarsus in the UMZC Specimen Catalogue). Formerly the property of Hugh Edwin Strickland. The original lacked the proximal extremity. Figured: Parish (2013, fig.5.38).

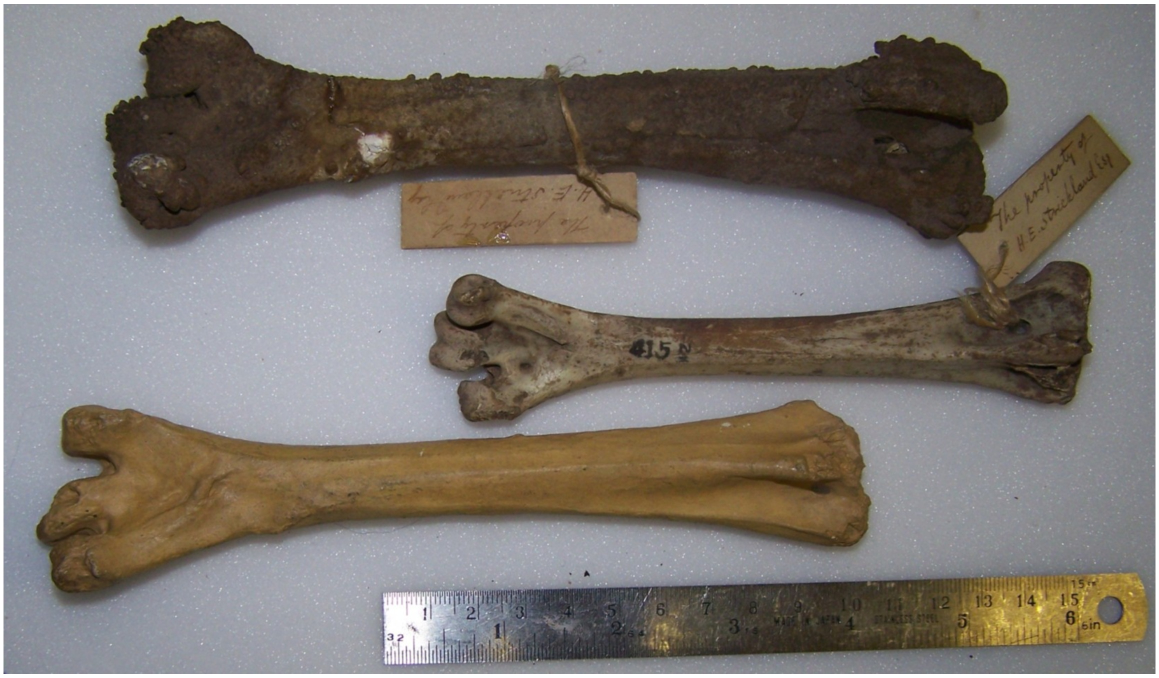
415.$\underline{\underline{N}}$ near complete right tarsometatarsus (♀), with some slight abrasion to the caudal surface of the lateral crista of the hypotarsus. Found in 1832 by Dawkins. No.17 of Strickland (1853). Originally deposited in the collection of the Société d'Histoire Naturelle, Mauritius (Hume *et al*. 2014b). Sent to Strickland by Bojer along with 415.O. Bojer's label, accompanying the bone read: "Tarsus of a bird, presumed to be a tarsus of the Dronte, discovered by Col. Dawkins in the same cave as No. 1, in 1831" (quoted in Strickland 1849, p.336; D-077). 415.$\underline{\underline{N}}$ and 415.O (see below) were described by Strickland at the Nineteenth Meeting of the BAAS, held in Birmingham in 1849 (Strickland 1850b). Length 5 inches 8 lines (143.9mm) (Strickland 1853). With label: "The property of H. E. Strickland Esq". Bearing '$415^{\underline{N}}$' in ink. With the label (the tarsometatarsus was formerly glued to a board with the label but is now separate):

> Right Tarso-metatarsus. described in Ann. & Mag. Nat.
> Hist. 2. Ser. IV. p. 336. Trans. Zool. Soc. IV. P. 187, 189, Pl.LV
> figs. 5, 6, 7. – Sent to H.E.S. by Prof. Bojer. Cur. Mauritius Museum in 1849.

Described: Stickland (1849c). See also Parish (2013, pp.230, 337). Figured: Strickland (1853, pl.55, figs.5-7); Parish (2013, fig.5.38).

415.O left tarsometatarsus (♂) with calcareous encrustation. One of the bones found in 1786 (the rest being in the Paris collection). No.6 of Strickland (1853). Originally deposited in the collection of the Société d'Histoire Naturelle, Mauritius (Hume *et al*. 2014b). Sent to Strickland by Bojer along with 415.$\underline{\underline{N}}$. Described: Strickland (1849c, 1859). With label: "The property of H. E. Strickland Esq". Bearing 'No 6' '415^{O}' in ink. A label attached to the left tarsometatarsus by Bojer when he sent the bone to Strickland in 1849 read: "Tarsus of the Dronte, being a remaining fragment of a more perfect skeleton sent by M. Julien Desjardins to the Baron G. Cuvier. The said skeleton was found in a cave at the island Rodrigue by M. Roquefeuille, inhabitant of Mauritius" (quoted in Strickland 1849c, p.336; Strickland 1853; D-076). See Parish (2013, p.230). Figured: Parish (2013, fig.5.38). 415.N, 415.N̳, 415.O are kept in the same box, with the label:

415^{N} , $415^{\underline{\underline{N}}}$ 415^{O}
Pezophaps solitaria
($415^{\underline{\underline{N}}}$ figured specimen)


The property of H.E. Strickland
The property of H.E. Strickland
415 N̳

Top: UMZC 415.O, *middle*: UMZC 415.N̳, *bottom*: UMZC 415.N (© Jolyon C. Parish, December 2008).

415.P gastrolith (now lost). The gastrolith was cut in order to examine it mineralogically. Probably that found in 1875 by William James Caldwell and given to Edward Newton by him (Oliver 1891; Newton & Gadow 1910). Described: Newton & Clark (1879, pp.449, 450). See UMZC 415.T. See also Parish (2013, p.294). Figured: Newton & Clark (1879, pl.xlvii, figs.4-6); Oliver (1891, vol.1, frontispiece[45]).

415.Q box: cast of endocranial cavity + nine spare casts. "? made from a specimen (No. 648) in the Cambridge Museum" (UMZC Specimen Catalogue). With label:

Cast of brain cavity of Rodriguez
Solitaire Pezophaps solitaria
FIG: NEWTON & CLARK, 1879 PHIL. TRANS. R. SOC.
168 (EXTRA VOL.): PLATE XLV FIG. 14. G. Cowles

415.R (other nos.: 17/Rap/1/a/1) Almost complete mounted skeleton (♂). Presented to the University of Cambridge by Edward Newton (Shipley 1913). Accessioned: 19.01.1903? It lacks patellae and alar phalanges. "415.$^{\underline{\underline{R}}}$" is written in black ink on the anterior of the cranium and on the right side of the sternum. The pelvis of a very large male (probably from Jenner's 1871 collection) was mounted in the male skeleton (Newton & Clark 1879). The skeleton is currently in the "Extinct Birds" display in the museum foyer. Figured: Newton & Newton (1869, pl.xxiv, figs.178, 179 [reproduced: Parish (2013, fig.5.44)]);[46] Oliver (1891, vol.1, frontispiece – see 415.P); Newton & Gadow (1910, fig.3). Twelfth vertebra figured: Newton & Clark (1879, pl.xliv, figs.5, 6). Thirteenth vertebra figured: Newton & Clark (1879, pl.xliv, figs.3, 4). Restored pelvis figured: Newton & Clark (1879, pl.xlvi, fig.1). Left pes figured: Newton & Clark (1879, pl.xliv, fig.7). (UMZC Specimen Catalogue).

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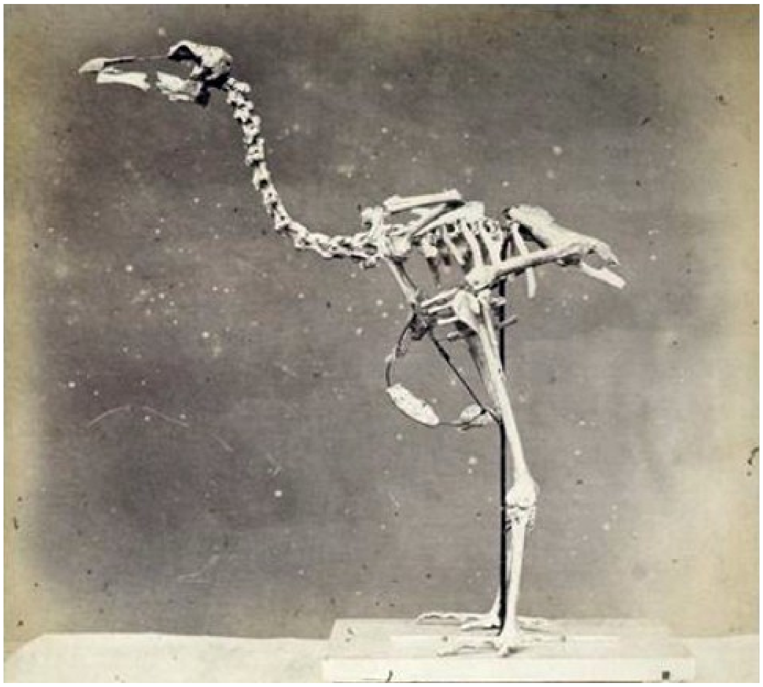
[45] "Photograph taken for Mr. Bidwell in November 1889 [...] reproduced by Messrs. Morgan and Kidd, of Richmond" (Oliver 1891, p.xii). This may have been Edward Bidwell (see Ralfe Whistler's Collection). Figured: Rodríguez-Pontes (2014, figs.2, 3, 5, 6).

Labels:

MUS. ZOOL. CAMBRIDGE
FAM. RAPHIDAE
Sp. Pezophaps soli-
taria ♂
CAT. NO.
17/Rap/1/a/1

SOLITAIRE
Pezophaps solitaria ♂
Rodrigues Dep. E. Newton M.A.
Magd Coll.



UMZC 415.R: photograph from *c*.1870 in the Archives of the Museum of New Zealand (see footnote 46).

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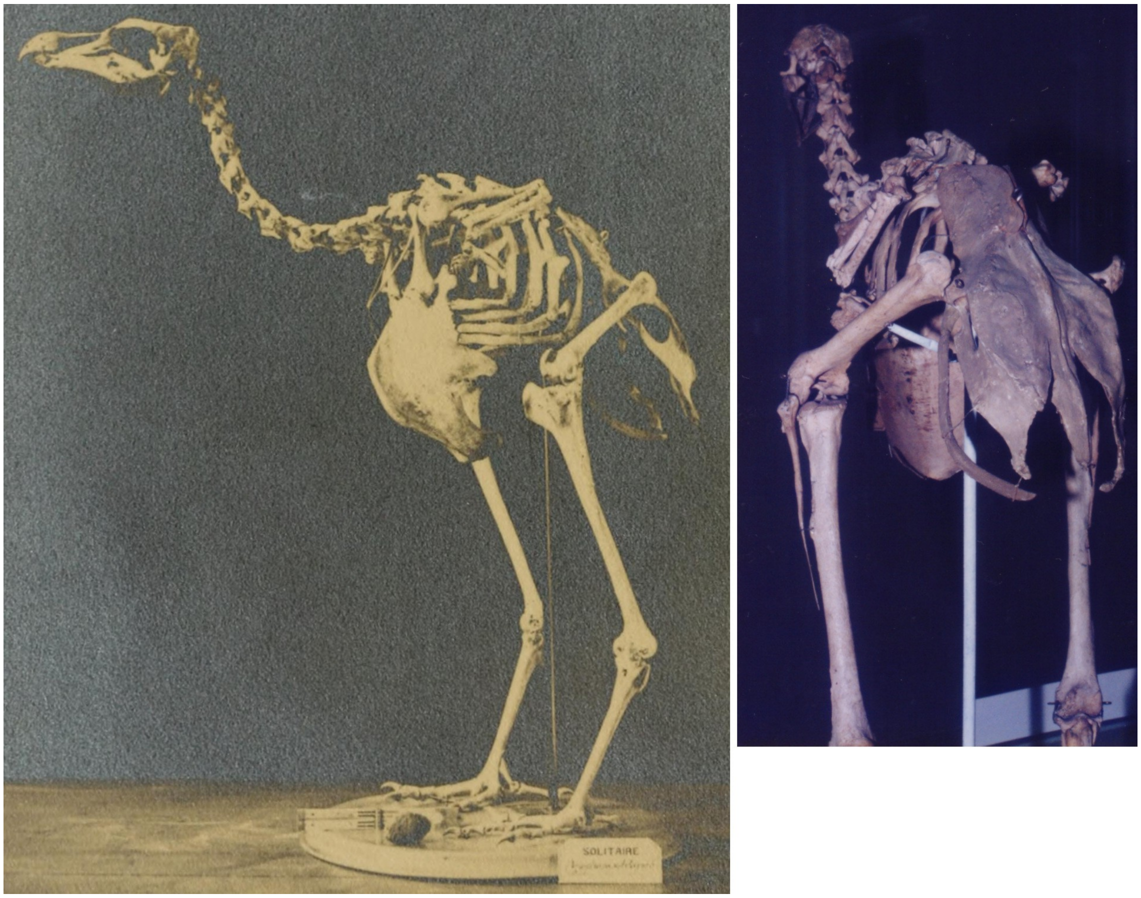
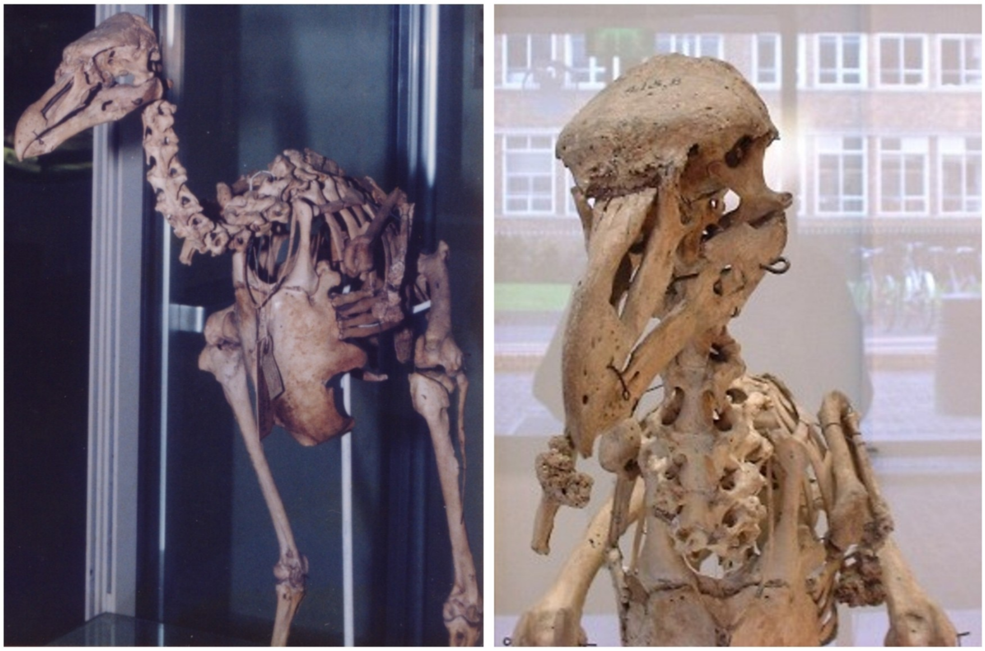
[46] "From photographs of the mounted specimens [...] deposited in the Museum of the University of Cambridge" (Newton & Newton 1869, p.362). There is a photograph of the skeleton dating from *c*.1870 in the Archives of the Museum of New Zealand. Black-and-white photograph. Albumen silver print, paper on mounting board. 197mm (height) x 252mm (length) on board 229mm (height) x 252mm (length). Registration number: O.031153. Bears the annotations: "Presented to the Colonial Museum by G [?] Buller 23.9.72"; and in black ink in Alfred Newton's handwriting: "Skeleton of Pezophaps solitaria ♂ in the Museum of the University of Cambridge AN. 21/4/72". http://collections.tepapa.govt.nz/objectdetails.aspx?oid=779065&term=pezophaps [accessed 25 November 2010; 13 January 2011]. See also 415.S.

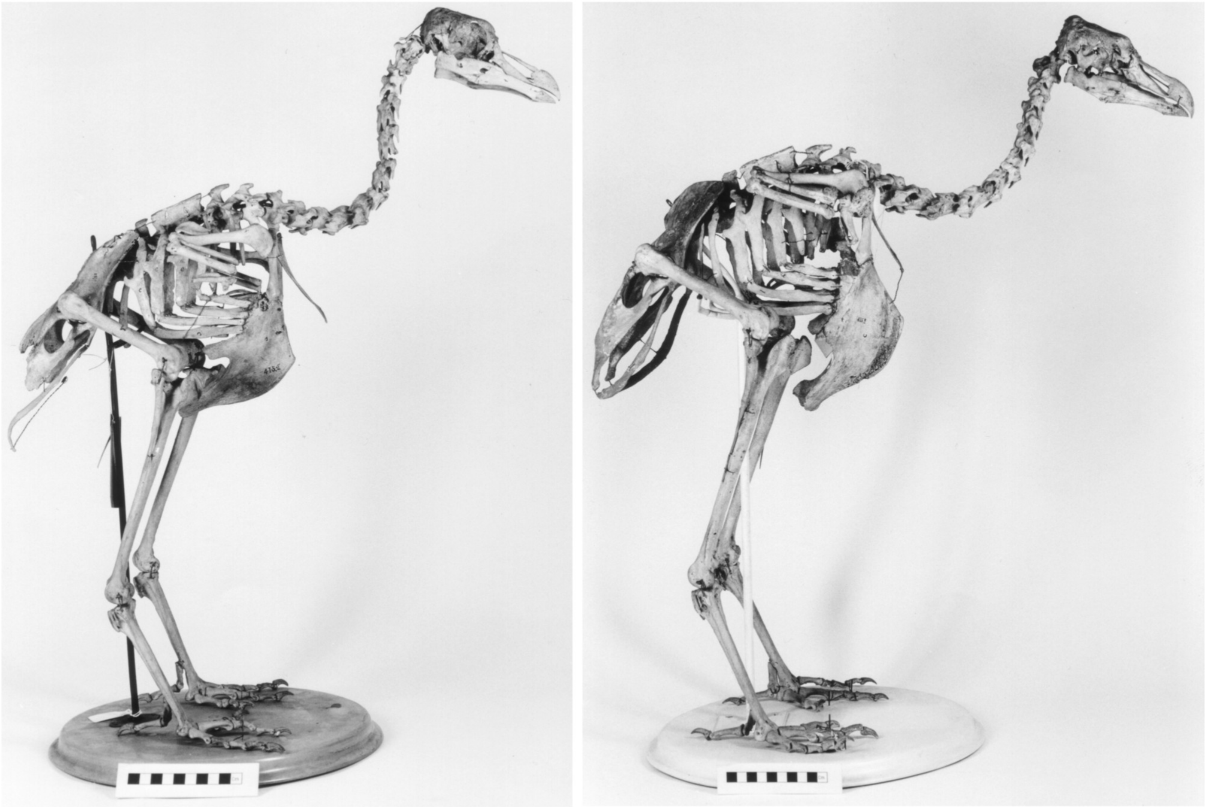


Left: UMZC 415.R, with UMZC 415.P at its feet (Oliver 1891, frontispiece); *right*: UMZC 415.R on display in the museum foyer (© Jolyon C. Parish, 4th April 1996).



UMZC 415.R on display in the museum foyer (© Jolyon C. Parish: *left*: 4th April 1996, *right*: 27th March 2002).

415.S (other nos.: 17/Rap/1/a/2) Almost complete mounted skeleton (♀). Presented to the University of Cambridge by Edward Newton (Shipley 1913). Accessioned: 19.01.1903? It lacks patellae, alar phalanges and caudal vertebrae. "415.$^{\underline{S}}$" is written in black ink on the right side of the sternum; "1871" in black ink on the right ilium. Figured: Newton & Newton (1869, pl.xxiv, fig.177 [see footnote for 415.R] [reproduced: Parish (2013, fig.5.44)]); Right vertebral ribs figured: Newton & Clark (1879, pl.xlv, figs.2-6). Sternal ribs figured: Newton & Clark (1879, pl.xlv, figs.7-9). (UMZC Specimen Catalogue).

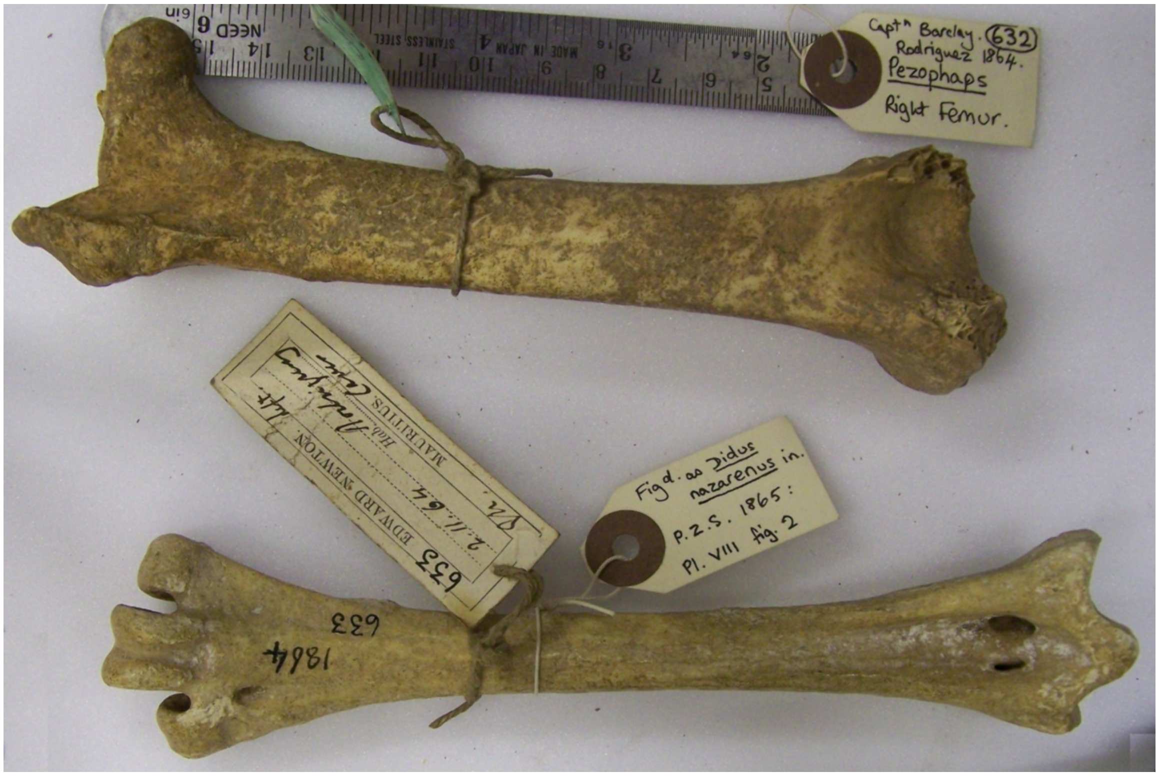


Left: UMZC 415.S, *right*: UMZC 415.R (© UMZC).

415.T box: three casts of gastrolith + mould (from 415.P). Accompanying label states: "The actual stone, catalogue as 415^{P}. is missing 1979". See Parish (2013, p.294). Figured: Parish (2013, fig.6.13).

632 box: right femur. Collected by Captain Barclay from a cave on Rodrigues, October 1864 (UMZC Specimen Catalogue). Damaged distally, probably from the action of the weather and subsequent crumbling of the bone since its discovery (A. Newton 1865a). Attached label reads: "632 Capt. Barclay 2/24th Reg: Rodriguez cave Oct. 1864". See Parish (2013, pp.234, 337) for details. Figured: A. Newton (1865a, pl.viii, fig.1 [as *Didus nazarenus*] [reproduced: Parish (2013, fig.5.40)]); Parish (2013, fig.5.38).

633 box: left tarsometatarsus. Collected by Edward Newton from a cave on Rodrigues, 2nd November 1864, and sent to Alfred Newton. Accessioned: 19th January 1903? Length (from the trochlear groove of the third metatarsal to the eminentia intercondylaris) 6 inches 10 lines (173.6mm); proximal width 1 inch 6 lines (38.1mm); distal width 1 inch 7 lines (40.2mm) (A. Newton 1865a). Attached is one of Edward Newton's labels. See Parish (2013, pp.234, 337) for details. Figured: A. Newton (1865a, pl.viii, fig.2 [as *Didus nazarenus*] [reproduced: Parish (2013, fig.5.40)]); Parish (2013, fig.5.38).



Top: UMZC 632, *bottom*: UMZC 633 (© Jolyon C. Parish, December 2008).

634 (other nos.: 810.a?) Box: ♂ skeleton, partially articulated (figured: Newton & Newton 1869, pl.xxiv, figs.178, 179). 1864-1871. Accessioned: 19.01.1903? • beak, cranium, left and right quadrates, mandible (all articulated) (cranium figured: Newton & Newton 1869, pl.xxi, figs.142-144; beak figured: Newton & Newton 1869, pl.xxii, figs.151, 152; right quadrate figured: Newton & Newton 1869, pl.xxii, figs.163-168); • string: atlas, axis, 3rd, 4th, 5th vertebrae (atlas and axis glued together); • box: 6th, 7th, 9th, 12th, 13th vertebrae, left and right scapulae, pedal phalanx, two pedal unguals (left scapula figured: Newton & Newton 1869, pl.xix, figs.84-86; right scapula figured: Newton & Newton 1869, pl.xix, figs.97-99); • 8th vertebra; • string: 9th, 10th, 11th vertebrae; 14th vertebra with pair of ribs (articulated, '634' "♂ 1866 sk." in ink); • notarium with pairs of vertebral ribs on 15th, 16th and 17th vertebrae (all articulated; right rib on 17th vertebra figured: Newton & Newton 1869, pl.xvi, fig.63); 18th vertebra with rib on right side (articulated) (1st-18th vertebrae figured: Newton & Newton 1869, pl.xv, figs.1-59); • cranial portion of sternum, sternum fragments, left and right coracoids, right sternal rib (figured: Newton & Newton 1869, pl.xvi, fig.64), 4th left sternal rib (figured: Newton & Newton 1869, pl.xvi, fig.61) (all articulated) (sternum figured: Newton & Newton 1869, pl.xviii, fig.75; left coracoid figured: Newton & Newton 1869, pl.xix, figs.76-79); • left humerus, left ulna, left radius, left carpometacarpus (all articulated); • right humerus, right ulna, right radius, right carpometacarpus (all articulated) (right humerus figured: Newton & Newton 1869, pl.xix, figs.91-92; right ulna figured: Newton & Newton 1869, pl.xix, figs.93, 96; right radius figured: Newton & Newton 1869, pl.xix, figs.94, 95; right carpometacarpus figured: Newton & Newton 1869, pl.xix, figs.88-90); • pelvis with ribs on 19th vertebra (all articulated) (pelvis figured: Newton & Newton 1869, pl.xvi, fig.65); • left femur; • right femur; • left tibiotarsus and left fibula (figured: Newton & Newton 1869, pl.xx, fig.100; left fibula figured: Newton & Newton 1869, pl.xx, fig.101); • right tibiotarsus and right fibula (articulated); • left tarsometatarsus, left first metatarsal and phalanges 1 of digit I, 1 of digit II, 1-3 of digit III, 1 of digit IV (all articulated); • right tarsometatarsus, right first metatarsal and phalanges 1-2 of digit II, 1-3 of digit III (all articulated)[47] (first metatarsal figured: Newton & Newton 1869, pl.xx, figs.104, 105;

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[47] The second phalanx mounted on digit III was figured by Newton & Newton (1869, pl.xx, figs.110-112) as the

phalanx 1 of digit II figured: Newton & Newton 1869, pl.xx, figs.128-130; phalanges 1-3 of digit III figured: Newton & Newton 1869, pl.xx, figs.116-124; 128-130) • phalanx 1 and ungual of right hallux (figured: Newton & Newton 1869, pl.xx, figs.106-109). • Note: the second phalanx mounted on digit II is labelled as the second phalanx of digit III, and the second phalanx mounted on digit III is labelled as the first (proximal) phalanx of digit IV. An accompanying label reads: "Note: The phalanges are labelled as described in Phil. Trans 1869 Pl. xx and not as they are mounted." • The two articulated wings were borrowed by Hialmar Rendahl in 1949 and loaned to Benno Ottow for his study (Ottow 1950). The accompany label states that they were returned in 1967.

635 (other nos.: 810.b?) (♀) Skeleton, partially articulated (figured: Newton & Newton 1869, pl.xxiv, fig.177). 1864-1871. Accessioned: 19.01.1903? • beak (lacking proximal end of right maxilla, with "1866 Ph. Tr. /69 XXII 156-158 635" in ink), cranium (damaged rostrally, with "635 1866 Ph. Tr. 1869 XXI Pl: XXII. 139-141 150" in ink), left quadrate, right quadrate, mandible (with "635 1866 Ph. Tr. 1869 Pl. XXII 159-162" in ink) (all articulated) (cranium figured: Newton & Newton 1869, pl.xxi, figs.139-141, pl.xxii, fig.150; beak figured: Newton & Newton 1869, pl.xxii, figs.156-158; mandible figured: Newton & Newton 1869, pl.xxii, figs.159-162); • string: axis plus 3rd-14th cervical vertebrae (with label: "Old ♀ skeleton" '635'); • 14th vertebra ('635' "1866 ♀" '15' "♀ skel.^{n}" in ink); • notarium ("♀ skel.^{n} 1866 635" in ink) with left rib on 16th vertebra; • 18th vertebra ("♀ skel.^{n} 19 1866" '635' '19' in ink); • left scapula ("635 *fig*. 132-133 1869. 1866 Pl.XX" in ink) (figured: Newton & Newton 1869, pl.xx, figs.132, 133); • left coracoid ("635 1866 Ph. Trans 1869 Pl. xix *f* 80-83" in ink) (figured: Newton & Newton 1869, pl.xix, figs.80-83); • sternum (damaged caudally, "635 1866 Phil. Trans 1869 Pl: xviii: *figs* 71-74" in ink), right coracoid ('B' in ink), left 3rd and 4th sternal ribs (3rd with 'E' in pencil; 4th lacking sternal end, with 'F' in pencil), 3rd and 4th sternal ribs (3rd with 'H' in pencil, 4th with 'G' in pencil) (all articulated) (sternum figured: Newton & Newton 1869, pl.xviii, figs.71-74); • left humerus ("635 1866. ♀ skeleton." in ink), left ulna, left radius, left carpometacapus, phalanx of digit II (all articulated) (left carpometacarpus figured: Newton & Newton 1869, pl.xxii, fig.148); • right humerus ("635 ♀ skel^{n} 1866" in ink), right ulna, right radius, right carpometacarpus (metacarpal III broken) (all articulated); • pelvis (damaged caudally, "1866 Phil: Trans 1869 Pl. XVII. 66-69 Pl. XVIII. 70 635" in ink) with ribs on 19th vertebra (left with '635' in ink, 'F' in pencil; right proximal end only) (pelvis figured: Newton & Newton 1869, pl.xvii, figs.66-69, pl.xviii, fig.70); • left femur, left tibiotarsus ("♀ skel.^{n} 1866 Pl. XX fig 102 635" in ink), left fibula ("635 Pl. XX figs. 102, 103" in ink) (all articulated) (left tibiotarsus and fibula figured: Newton & Newton 1869, pl.xx, figs.102, 103); • right femur, right tibiotarsus, right fibula (all articulated); • left tarsometatarsus, first metatarsal, phalanges 1 of digit I, 1 of digit II, 1-3 of digit II, 1 of digit IV (all articulated); • right tarsometatarsus, first metatarsal, phalanges 1 of digit I, 1 of digit II, 1-2 of digit III, 1 of digit IV (all articulated). [Note: no atlas present] With labels:

Pezophaps ♀ sternum
Phil. Trans. 1869
Pl. xviii. figs. 71-74

Pezophaps. 635
♀ L. Scapula Fig^{d}.
Phil. Trans. 1869
Pl. XX figs. 132-133

Pezophaps. 635
♀ Coracoid. Fig^{d}.
Phil. Trans. 1869
Pl. XIX figs. 80-83

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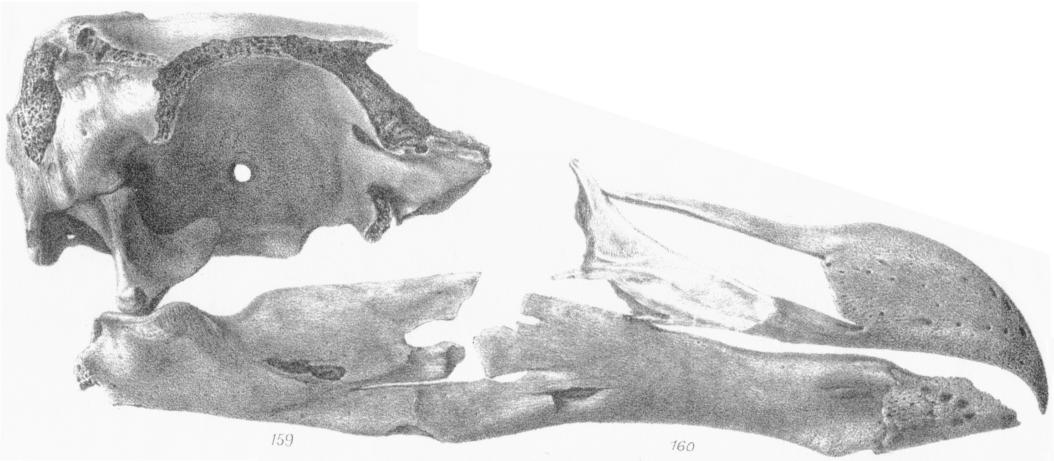
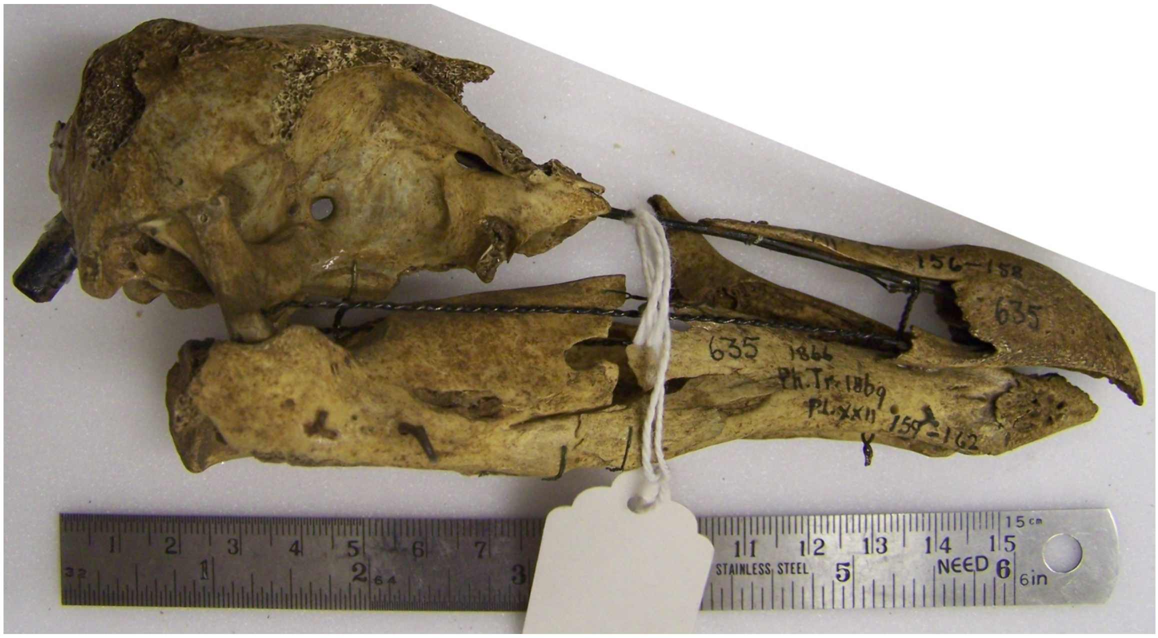
proximal phalanx of digit IV (see below). The unguals figured by Newton & Newton (1869, pl.xx, figs.113-115, 125-127) were later determined to be chelonian.

Pezophaps. 635
L. metacarpal ♀
Fig^{d}. Phil. Trans.
1869
Pl. XXII Fig. 148

Pezophaps pelvis
Fig^{d}. Phil. Trans. ♀
1869
Pl. XVII figs. 66-69
Pl. XVIII fig 70.



UMZC 635 (Newton & Newton 1869, pl.xxii, figs.150, 157, 159, 160).



UMZC 635 (© Jolyon C. Parish, December 2008).

636-640 box: ♂ left carpometacarpus (636: figured: Newton & Newton 1869, pl.xix, fig.87), ♀ right ulna showing impression of secondary quills (637: figured: Newton & Newton 1869, pl.xx, fig.134), left[48] ulna showing impression of secondary quills and mark of healed fracture (638: figured: Newton & Newton 1869, pl.xx, fig.135), right ♂[49] coracoid (639, pathologically bent: figured: Newton & Newton 1869, pl.xx, fig.136; Ottow 1950, pl.ii, fig.7, pl.viii, fig.22), right ♂ radius (640: figured: Newton & Newton 1869, pl.xx, figs.137, 138). 1864-1871. Accessioned: 19.01.1903?

641-647 box: ♀ cranium (641, broken: figured: Newton & Newton 1869, pl.xxi, fig.145), ♀ cranium (642, broken: figured: Newton & Newton 1869, pl.xxi, fig.146), cranium (643: figured: Newton & Newton 1869, pl.xxi, fig.147), dertrum (644: figured: Newton & Newton 1869, pl.xxii, fig.153), beak (645: figured: Newton & Newton 1869, pl.xxii, figs.154, 155), 18th vertebra (646: figured: Newton & Clark 1879, pl.xliv, figs.1, 2), cranium (647: figured: Newton & Clark 1879, pl.l, figs.1, 3). 1864-1871. Accessioned: 19.01.1903?

648 box: sectioned cranium (two halves + beak + palatine fragment) (left side of cranium figured reversed: Newton & Clark 1879, pl.l, fig.2). 1864-1871. Accessioned: 19.01.1903?

649 box: beak with right palatine. Figured: Newton & Clark (1879, pl.l, figs.4-6). 1864-1871. Accessioned: 19.01.1903?

650 box: furcula (broken). Figured: Newton & Clark (1879, pl.l, fig.7). 1864-1871. Accessioned: 19.01.1903?

651 box: cranial portion of sternum with left and right coracoids and left and right scapulae (all articulated). 1864-1871. Accessioned: 19.01.1903? Also in Newton's catalogue of sterna, no.810.c.

652 box: 14th vertebra, partial notarium (15th and 16th vertebra, damaged), two 18th vertebrae. With old label. 1864-1871. Accessioned: 19.01.1903? "Found uncatalogued in stores in a box bearing a label addressed to Alfred Newton, Magdalene College, Cambridge and noted "Received March 1879"" (UMZC Specimen Catalogue). The accompanying label (figured: Parish 2013, fig.5.43) reads:

Natural History . Overland Parcel Post
Value .Nominal (under 3½ oz) Rec^{d}. March /79
Alfred Newton Esq. St
Magdalen College
Cambridge – England.

653 box: five left quadrates (bearing '1866' in ink), seven left quadrates (bearing '1871' in ink), six right quadrates (bearing '1866' in ink), eight right quadrates (bearing '1871' in ink). Box: pair of left and right quadrates (orbital processes broken off). 1864-1871. Accessioned: 19.01.1903? "The largest part (11 boxes) of several collections of bones from Rodriguez from which were extracted bones for composite skeletons and bones which have been figured. See Nos. 415R and 415S and 632-650" (UMZC Specimen Catalogue).

Box: beak and mandible fragments: six premaxillae; two portions of corpus ossis premaxillare; one left maxilla (fragmentary); two right maxillae (one bearing "M. C. Good" in ink); one left portion of proximal mandible (damaged); five right portions of proximal mandible (two damaged); five middle portions of mandible (including two left and one right portion); mandibular symphysis; five fragments of ?mandible (flat elements); small skull fragment; small ?skull fragment; fragment of distal end of left side of synsacrum.

Box: nine premaxillae, three corpus ossis premaxillae, one rostrum (bearing 'Largest' in pencil), three left maxillae (one bearing "M. C Good" in ink"), right maxilla, right maxilla with right palatine, premaxillae with fragmentary right maxilla, fragment of left palatine; mandibular symphysis and distal left ramus.

Box: ten crania and cranial fragments (bearing '1871' or "C 1871" in ink, comprising three near complete crania, one near complete cranium damaged on right side, one rostral fragment, three basicranial fragments, one caudodorsal fragment, one cranial fragment).

Box: numerous mandible fragments.

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[48] Given as a right female ulna by Hume & Steel (2013).

[49] Given as a right female coracoid by Hume & Steel (2013).

Box: coracoids: nine ♂ left coracoids (two bearing ‘1866’, seven bearing ‘1871’ in ink), nine ♀ left coracoids (one bearing ‘1866’, eight bearing ‘1871’ in ink), one ♂ omal end of left coracoid (bearing ‘1866’ in ink), two ♀ omal ends of left coracoid (bearing ‘1866’ in ink), seven ♂ right coracoids (three bearing ‘1866’, four bearing ‘1871’ in ink), ten ♀ right coracoids (one bearing ‘1866’, nine bearing ‘1871’ in ink), one ♂ omal end of right coracoid.

Box: coracoids: one ♂ left coracoid, seven ♀ left coracoids, five ♂ right coracoids, five ♀ right coracoids, sternal end of right ♀ coracoid, right coracoid (lacking sternal extramity), omal end of ♀ coracoid.

Box: scapulae: thirteen ♂ scapulae (three bearing ‘1866’, ten bearing ‘1871’) (including eight left and three right), distal end of ♂ scapula.

Box: scapulae: five left ♀ scapulae (two bearing ‘1866’, three bearing ‘1871’), five right ♀ scapulae (all bearing ‘1871’).

Box: 27 incomplete scapulae lacking distal ends (including fifteen left and eleven right), three distal ends, a fragment of shaft and a scapula lacking the proximal end.

Box: five furcula fragments (including two distal portions, one distal portion with complete scapus, one omal end of scapus).

Box: seven sterna (damaged), left costal region of sternum (all bearing ‘1871’), ♀ sternal fragment (‘653’).

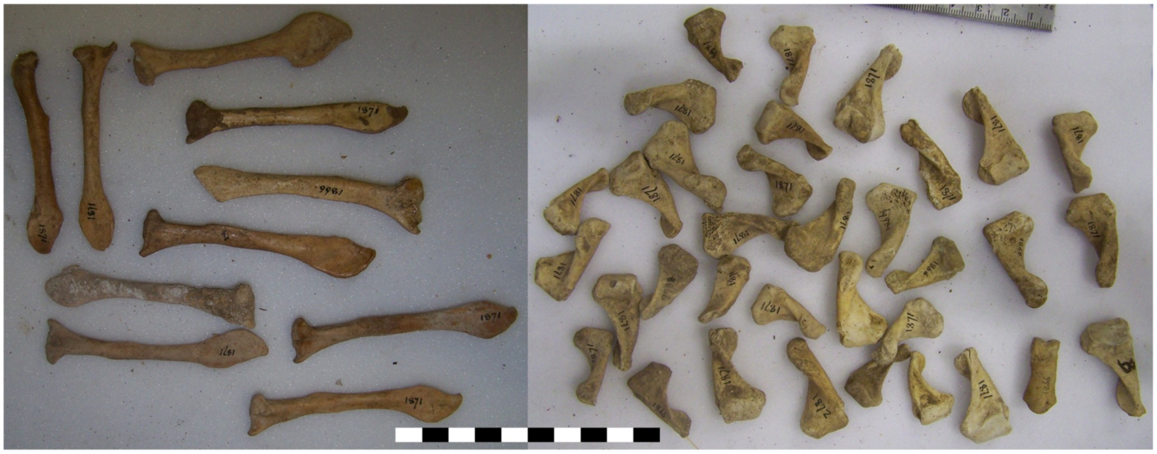
Partition: numerous sternal fragments (‘653’).

Box (653): • partition: femora (1866): four ♂ left femora, eight ♀ left femora, seven ♂ right femora (one with pathology), five right ♀ femora; • partition: femora (undated): eleven ♂ and ten ♀ right femora (some damaged proximally, distally), ten ♂ and fifteen ♀ right femora (some damaged proximally, distally; one ♀ femur bears ‘1871’).

Box: • partition: tarsometatarsi (undated): thirteen ♂ and eight ♀ left tarsometatarsi (some lacking proximal, distal ends; includes one bearing ‘N3’, one bearing ‘1866’ and two bearing ‘1871’; includes two distal ends), eight ♂ and nine ♀ right tarsometatarsi (some lacking proximal or distal ends; includes two distal ends), distal end of right tibiotarsus (bearing ‘1866’, medial condyle damaged); • partition: tarsometatarsi (1871): fourteen ♂ left tarsometatarsi, twenty-one left ♀ tarsometatarsi, fifteen ♂ right tarsometatarsi, seventeen ♀ right tarsometatarsi, two left tarsometatarsi (tied together, with the label: “longest & smallest ♀”, two right ♂ tarsometatarsi (tied together, with the label: “longest & smallest ♂”; one with pathology), right ♂ tarsometatarsus (bearing “MUS. ZOOL 1871 CANT” in ink; with pathology); • partition: tarsometatarsi (1866): six ♂ left tarsometatarsi, eight ♂ right tarsometatarsi, twelve ♀ left tarsometatarsi, thirteen ♀ right tarsometatarsi, left ♂ tarsometatarsus (“MUS. ZOOL CANT. 1866” in ink; with pathology), left ♀ tarsometatarsus (broken in two).

Box: partition (653): • box: eleven left and twenty-two right first metatarsals, one pedal phalanx; • box: twenty fibulae (1866); • box: thirty-one fibulae (undated); • box: forty-two fibulae (1871), one pathological fibula (“MUS ZOOL 1871 CANT” in ink); • box: forty-nine pedal phalanges (bearing ‘1866’ in ink), four pedal phalanges (bearing ‘1871’ in ink), four pedal phalanges; • box: fourteen pedal phalanges (bearing ‘1871’ in ink; with label “m. 2. J. 2 ♂”); • box: two pedal phalanges (bearing ‘1866’ in ink), three pedal phalanges (bearing ‘1871’ in ink); • box: ulnare, radiale, two sesamoids; • box: one pedal phalanx; • box: five ungual phalanges; • box: four pedal phalanges; • box: two pedal phalanges; • box (with label: “Pezophaps Miscellaneous bones – found together in stores.”): vertebral rib (bearing “9 Z Z F 6” in pencil), right scapula (lacking distal end), ?left ulna, right ulna, two ulnae, three radii, distal end of ♂ radius, fragment of ? radius, two right first metatarsals, six pedal phalanges, two fragments of first metatarsal?; bone fragment, two non-*Pezophaps* vertebrae; [ulnae bearing either ‘1866’ or ‘1871’ in ink are figured in Ottow 1950, pl.iii, fig.10; radii bearing either ‘1866’ or ‘1871’ in ink are figured in Ottow 1950, pl.iv, fig.12; two ♂ exostotic radii bearing ‘1871’ in ink are figured by Ottow 1951, fig.2] • box (with label: “Pezophaps Miscellaneous bones – found together in stores.”): seven bones (including fragments of radii, ?rib fragment); • box (with label: “m. 1 ♀”): twenty-seven pedal phalanges (bearing ‘1871’ in ink), two pedal phalanges (bearing ‘1866’ in ink); • box: fifteen pedal phalanges (bearing ‘1871’ in ink), two pedal phalanges (bearing ‘1866’ in ink); • box: fourteen pedal phalanges (bearing ‘1871’ in ink); • box (with label: “J. 1 ♂”): twenty-three pedal phalanges (bearing ‘1871’ in ink); • box (with label: “m. 1. ♂”): twenty-one pedal phalanges (bearing ‘1871’ in ink); • box (with label: “m. 3. ♂”): seventeen pedal phalanges (bearing ‘1871’ in ink); • box: eighteen phalanges (bearing '1871' in ink); • box (with label: "J. 1. ♀"): thirty-two phalanges (bearing '1871' in ink); • box: six pedal phalanges plus two fragmentary pedal phalanges (some bearing "L. m. 1." and one with "R. [?]. 1." in ink); • box: sixteen phalanges (bearing '1871' in ink); • box (with label: "O. 1 ♂"): seven phalanges (bearing '1871' in ink) plus one pedal phalanx (bearing '1866' "L. m. II" in ink); • box (with label: "O. 1 ♀"): ten phalanges (bearing '1871' in ink). Partition (653): tibiotarsi (1866): four ♂ left tibiotarsi, two ♂ right tibiotarsi, three ♀ left tibiotarsi, six ♀ right tibiotarsi, one distal ~⅔ left ♀ tibiotarsus, two distal ~⅔ right ♀ tibiotarsi, one proximal ~⅔ right ♀ tibiotarsus, shaft of left ♂ tibiotarsus, shaft splinter of ♂ tibiotarsus, shaft of ♀ tibiotarsus.

Box (653): very numerous fragments of leg and wing bones.



Bones of *Pezophaps*: *left*: scapulae, *right*: first metatarsals (© Jolyon C. Parish, December 2008).

Fragment of left humerus. Collected by Edward Newton from a cave on Rodrigues, 2nd November 1864, and sent to Alfred Newton. Transverse diameter of shaft 6 lines (12.7mm); cranio-caudal diameter of shaft 4⅔ lines (9.9mm) (A. Newton 1865a). Not listed above and not seen by the present author. Figured: A. Newton (1865a, pl.viii, fig.3).

The skeletons of *Pezophaps* were "put together from a large series of bones dug up by Sir Edward Newton in a cave at Rodriguez" (Clark 1891, pp.23-24). Specimens from Hugh Edwin Strickland's collection were donated to the museum by his wife, Catherine Dorcas Maule Strickland in 1867. "Apart from some casts, a few odd bones, and two mounted skeletons (see Nos. 415 L-S), the majority of the large collection of Solitaire bones had not been catalogued with numbers until 1979" (UMZC Specimen Catalogue; see Memo by Alfred Newton, Osteological Catalogue pp.36DD-DE, 11th June 1895).

According to a typewritten memorandum, written by Alfred Newton, attached to UMZC 415.R,

> the most perfect mounted skeletons formed out of [the whole collection of bones] are the ♂ and ♀ in the University Museum, the next best is that in the Brit.Mus., while others were given to the Museum of the College of Surgeons of England, the University of Oxford, and the Museums of Science and Art in Edinburgh and Dublin. A considerable series was also given to the Museum of Paris, while all the remaining bones were retained at Cambridge (but some have since been used in exchange).

Othenio Abel examined part of the UMZC solitaire material (Abel 1912, 1935; Ottow 1950). For his study, Cambridge loaned Benno Ottow (via Hialmar Rendahl, head of the Department of Vertebrate Zoology, Swedish Museum of Natural History) "71 individual exostotic and dysplastic bones of the fore extremities". These comprised: one scapula (♀ right), two coracoids, one humerus, fifteen ulnae, 30 radii and 22 carpometacarpi (Ottow 1950).

According to the University Museum of Zoology Cambridge Ornithology Osteology and Fossil Collections catalogue, 1999: http://131.111.101.189/searchbird.htm [accessed April 2004], nos. 635-650 were collected in 1864. This is a mistake, as this material was collected during the period 1865-1871. The 1871 material (approximately 1000 bones: Hume *et al*. 2014b) was collected by George Jenner from his searches of the Rodrigues caves. The 85 bones found by Jenner in 1865 (see Parish 2013, pp.234-236) are also now in the UMZC collections, as are the 2000+ bones (including two associated skeletons – presumably UMZC 415.R and 415.S) found by Jenner and Morris in 1866 (Hume *et al*. 2014b). Thus, all of Jenner's specimens were sent to the UMZC (Hume *et al*. 2014b).

At the Meeting of the Royal Society of Arts and Sciences of Mauritius, held on 27th October 1870, Louis Bouton, secretary of the Society, presented, on behalf of Edward Newton, the President of the Society, a photograph depicting the male and female solitaire skeletons mounted with the bones collected by Jenner (Anon. 1871f).

Solitaire Specimens Examined by Newton & Newton (1869) and Newton & Clark (1879)
The bones that were found by George Jenner in 1865 were enumerated as follows:

	Male specimens		Female specimens	
	Left side	Right side	Left side	Right side
Fragments of pelvis	1		3	
Coracoid (upper end)	0	0	0	1
Humerus	1	2	1	2
Ulna	0	2	1	0
Radius	1	0	1	0
Femur	5	4	4	2
Tibiotarsus	8	7	7	9
Fibula	0	2	0	0
Tarsometatarsus	5	5	6	0
Pedal phalanx of digit III	0	1?	0	0

(after A. Newton 1865b, p.717).

The bones discovered by Jenner and his team in 1866 included: five skulls, more or less complete; nineteen quadrates; 34 mandible fragments (half belonging to the proximal end and half to the distal end); 161 vertebrae (including six specimens of the axis and nine of the 18th vertebra, although none of the latter were complete); 67 ribs (53 vertebral and fourteen sternal) plus numerous fragments; pelves belonging to at least 37 individuals (one almost complete); sterna belonging to at least six individuals; 27 coracoids plus eighteen upper ends of coracoids; 36 scapulae; 46 humeri, mostly complete; 41 ulnae; 43 radii; 32 carpometacarpi; 119 near complete femora, near perfect; 66 tibiotarsi, near perfect, plus numerous fragments; 59 fibulae; 123 near complete tarsometatarsi, plus numerous large and small fragments; fifteen specimens of the first metatarsal; and 150 pedal phalanges (phalanges 2 and 3 of digit II and phalanges 2, 3 and 4 of digit IV lacking) (Newton & Newton 1869).

The collection examined by Newton & Newton (1869) contained 161 vertebrae, most of which were imperfect. In the same collection there were approximately 53 vertebral ribs, mostly imperfect (many missing their uncinate processes) and many consisting of only dorsal ends, as well as fourteen sternal ribs. The following table gives the distribution of ribs in this collection:

	Left		Right	
Rib	Vertebral	Sternal	Sternal	Vertebral
1	X	–	–	X
2	X	–	–	X
3	X	X	X	X
4	X	X	X	X
5	0	X	0	X
6	X	X	X	X
7	0	–	–	½

X = rib present, 0 = rib missing, – = rib absent.
(after Newton & Newton 1869, p.334).

Also in this collection were 46 humeri, most in almost perfect condition, and 32 carpometacarpi.

The material of *Pezophaps* Newton & Clark (1879) examined consisted of: seventeen crania and fragments of eight others from Jenner's collection, and nine crania from the NHMUK collection (of the 26 reasonably complete crania there were nine male and twelve female); fifteen specimens of the beak (the caudal part of the beak was present in six specimens (three male and three female), the palatines were complete in four specimens, the palatine process of the maxilla were present in seven specimens); four jugals; nine pterygoids; 332 cervical vertebrae (154 male and 178 female; Jenner's collection):

Vertebra	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**
♂	2	10	11	12	16	14	13	13	13	14	15	11	10	154
♀	1	12	13	13	17	16	18	22	14	18	12	10	12	178

(Newton & Clark 1879, p.439);

21 (eleven male and ten female) examples of the 18th vertebra; six caudal vertebrae, including the pygostyle (it is not known from how many individuals these bones were from); only three or four examples, in the combined collections, of the 5th sternal rib attached to the preceding sternal, "and then only on one side or the other" (*ibid.* p.440); eight pelves (three probably male and five female); three furculae plus fragments of three others (Jenner's collection); leg bones:

	Femur		Tibiotarsus		Tarsometatarsus	
	Left	Right	Left	Right	Left	Right
Presumed ♂	28	41	41	42	34	36
Presumed ♀	38	31	42	40	33	29

(*ibid*., p.443);

and a gastrolith, given to Edward Newton by Caldwell (*ibid*. pl.xlvii, figs.4-6), which was exhibited at the ZSL by Alfred Newton (Newton 1878). For measurements of the specimens examined by Newton and Clark see Anatomy.

In Jenner's collection, examined by Newton & Clark (1879), there were three complete furculae (Newton & Clark 1879, pl.xlvii, fig.3 and pl.l, fig.7) and fragments of three others.

Localities of Jenner's Specimens (Hume *et al.* 2014b)

Identifications by Hume *et al*. (2014b) of Jenner's localities as mentioned in his 1871 report:
• Bones Nos. 1-6 (found in "Caverne Vangasaille" of Jenner): Bones N^{o}. 1: possibly Caverne Bambara II and III (19° 45.305' S, 63 22.081' E). • Bones N^{os}. 2-5: side passages and boulder interstices wthin the cave complex. • Bones N^{o}. 6: Caverne Bambara IV (19° 45.361' S, 63° 22.074' E) – it being of similar size, the only cave that opens out onto Rivière Anse Quitor and having compacted sediments due to regular flooding. • Bones N^{o}. 7: the description fits best with Caverne Vosmaeri (19° 45.452' S, 63° 22.155' E). • Bones N^{o}. 8: Jenner's directions "appear entirely inaccurate" but it is thought that Caverne Tortue (19° 45.168' S, 63° 22.189' E) is the locality of these bones. • Bones N^{o}. 9: difficult to identify, the description would fit either Caverne Six Sting (19° 45.238' S, 63° 22.026' E) or Caverne de l'Etrave (19° 45.254' S, 63° 22.016' E). • Bones N^{o}. 10: Caverne l'Affouche (19° 45.373' S, 63° 22.175' E). • Bones N^{o}. 11: Caverne Papaye (19° 45.650' S, 63° 22.329' E). • Bones N^{o}. 12: probably Caverne Gastonia (19° 45.750' S, 63° 22.303' E). • Bones N^{o}. 13: the description fits best with Electricity Pole Cave (19° 45.677' S, 63° 22.293' E), which may have been formerly connected to Caverne Papaye.

Saffron Walden Museum

Saffron Walden Museum, Museum Street, Saffron Walden, Essex CB10 1JL

Raphus cucullatus

Information from Sarah Kenyon, Saffron Walden Museum (pers. comm., 7th March 2012; 16th March 2012).

SAFWM: 1891.61.1 cast of the Tradescant head, made before 1891. Painted black. 230mm long x 100mm wide x 120mm high.
SAFWM: 1891.61.2 cast of the BM foot, made before 1891. Painted brown. 245mm long x 80mm wide x 80mm high. The accessions register states that it was from the British Museum
SAFWM: 1891.61.3 cast of the Copenhagen skull. No longer in the museum collections (Sarah Kenyon, pers. comm., 23rd March 2012).

These casts were presented to the museum on 16th July 1891 by Joseph Clarke (1802-1895) of Saffron Walden, Essex. Under the exchanges of the Liverpool Museum, Anon. (1867c) listed: "A Cast of the Foot Bones of the Dodo (from the original in the Oxford Museum), received from Mr. Joseph Clark, F.S.A., Saffron Walden, in exchange for a set of Casts of Dodo Bones" (p.15). The foot bones are listed in the museum accessions register, but without number. See also UMZC 415. The set of casts of bones are also listed in the museum accessions register (identifications based on the sketches given in the register):

SAFWM: 1891.61.4 pair of tibiotarsi
SAFWM: 1891.61.5 pair of femora
SAFWM: 1891.61.6 three tarsometatarsi
SAFWM: 1891.61.7 two humeri (including one left)
SAFWM: 1891.61.8 pair of mandibular rami
SAFWM: 1891.61.9 fragmentary sternum
SAFWM: 1891.61.10 incomplete pelvis
SAFWM: 1891.61.11 five vertebrae
SAFWM: 1891.61.12 pair of scapulocoracoids
SAFWM: 1891.61.13 six ribs
SAFWM: 1891.61.14 pair of fibulae

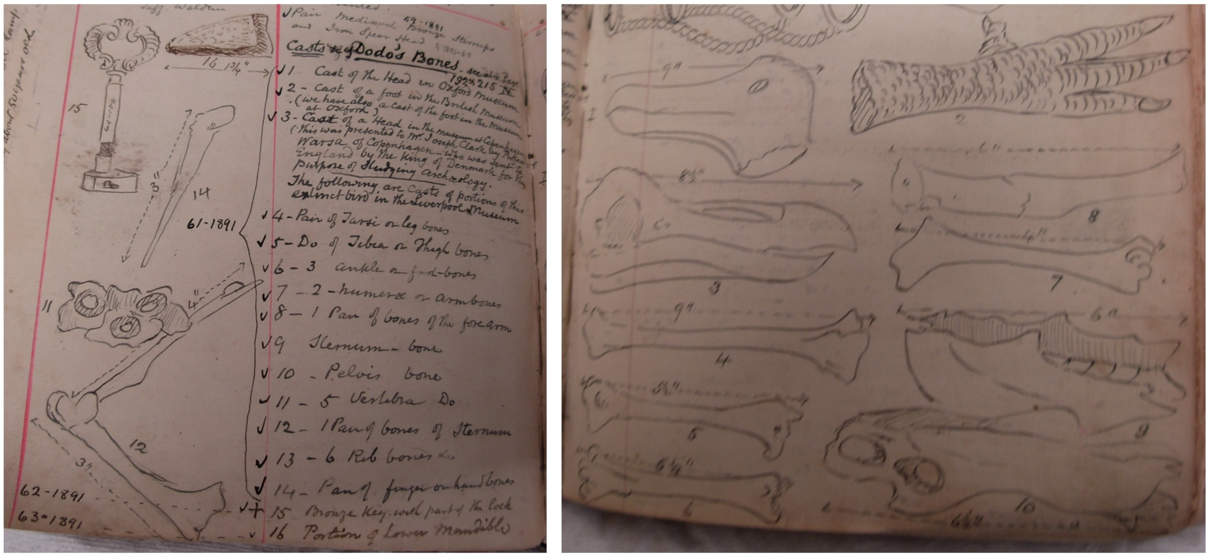
The above correspond to the casts present in the World Museum, Liverpool, with the exception that Liverpool has three vertebrae instead of five, a pair of clavicles instead of a pair of mandibular rami, and three tarsometatarsi instead of merely a pair. Below is a transcription of the Saffron Walden Museum accession register C, p.187:

	59 to Mr Joseph Clarke Saff. Walden	Presented. [...]
1891 July 16		Casts &c of Dodo's Bones. see also Page 192 & 215 IV ✓1 Cast of the Head in Oxford Museum ✓2 – Cast of a foot in the British Museum .(we have also a cast of the foot in the Museum at Oxford) 3 – Cast of a Head in the museum at Copenhagen (this was presented to Mr. Joseph Clark by Professor Warsa of Copenhagen[50] – who was sent to England by the King of Denmark for the purpose of studying archæology. The following are casts of portions of this extinct bird in the Liverpool Museum ✓ 4 – Pair of Tarsi or leg bones ✓ 5 – Do of Tibia or thigh bones

---

[50] Jens Jacob Asmussen Worsaae (1821-1885). Danish archaeologist and historian. He was sent by Christian VIII on a research trip to Britain and Ireland in 1846 and 1847.

61-1891	✓	6 – 3 ankle or foot bones
	✓	7 – 2 humeræ or arm bones
	✓	8 – 1 Pair of bones of the forearm
	✓	9 Sternum- bone
	✓	10 – Pelvis bone
	✓	11 – 5 Vertebra Do
	✓	12 – 1 Pair of bones of sternum
	✓	13 – 6 Rib bones &c
	✓	14 – Pair of finger or hand bones
62-1891		+15 Bronze key with part of the lock
63-1891		16 Portion of Lower Mandible



15
1¾"
3"
14
11
4"
12
3½"
9"
8½"
3
2
6"
8
7
4
5
6
9
10

✓Pair Medieval Bronze Stirrups and Iron Spear Head. 59-1891

Casts of Dodo's Bones. see also Page 192 & 215 N

✓1 Cast of the Head in Oxford Museum

✓2 - Cast of a foot in the British Museum. (we have also a cast of the foot in the Museum at Oxford)

✓3 - ~~Cast~~ of a Head in the museum at Copenhagen (This was presented to Mr. Joseph Clark by Professor Warsa of Copenhagen - who was sent to England by the King of Denmark for the purpose of studying archæology.

The following are casts of portions of this extinct bird in the Liverpool Museum

61-1891

✓4 - Pair of Tarsi or leg bones

✓5 - Do of Tibea or Thigh bones

✓6 - 3 ankle or foot-bones

✓7 - 2 - humeræ or arm bones

✓8 - 1 Pair of bones of the forearm

✓9 Sternum - bone

✓10 - Pelvis bone

✓11 - 5 Vertebra Do

✓12 - 1 Pair of bones of Sternum

✓13 - 6 Rib bones &c

✓14 - Pair of finger or hand bones

62-1891 ✓+15 Bronze Key with part of the lock

63-1891 ✓16 Portion of Lower Mandible

Saffron Walden Museum accession register C, pp.187-188 (© Saffron Walden Museum).

Unfortunately, these are no longer present in the museum collections. Many specimens were disposed of during the twentieth century, especially in the 1960s (Sarah Kenyon, pers. comm., 16th March 2012). (See below: World Museum, Liverpool).

The following bones were identified from illustrations in accession register C (p.192):

SAFWM: 1891.85 sternum (damaged)
SAFWM: 1891.86 pelvis (lacks distal end)
SAFWM: 1891.87 femur
SAFWM: 1891.88 right tibiotarsus
SAFWM: 1891.89 left tarsometatarsus
SAFWM: 1891.90 ?proximal fragment of mandible?
SAFWM: 1891.91 symphysis and distal end of left mandibular ramus

Dated 16.7.1891. Given by George Clark to Nicholas Waterhouse (see also Oxford and Bolton) and given in the 1860s by the latter to Joseph Clarke in exchange for some autographs. No longer in the museum collections (Sarah Kenyon, pers. comm., 23rd March 2012). Page 191 of the Saffron Walden Museum accession register C reads:

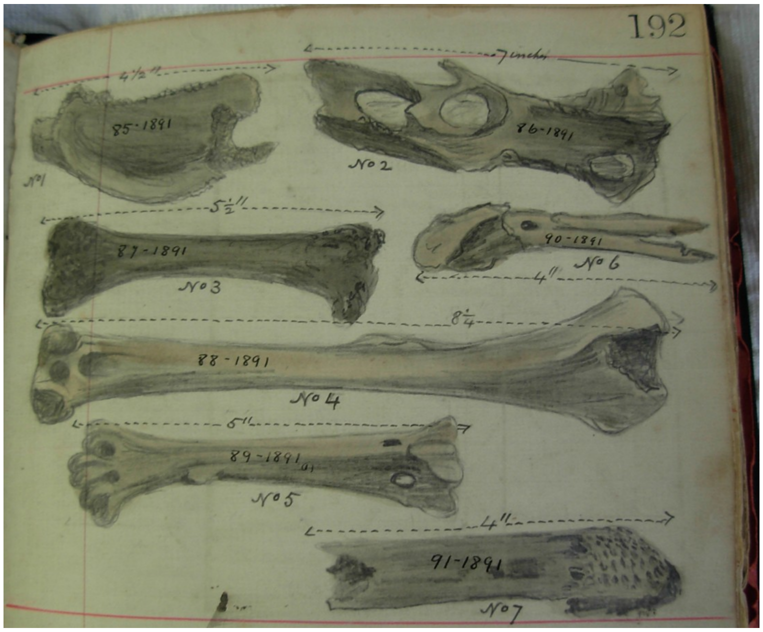
1891	Mr Joseph Clarke	Presented.

July 16. The Roos
Saff Walden

see also Page 231-A & 73

9 Bones of the Extinct Bird
The Dodo – see opposite
85.1891
✓Nº1 – Sternum Bone
86.1891
✓ " 2 – Pelvis Bone
87.1891
✓ " 3 – Humerus Bone (this bone is almost black) probably found in a bog.
88.1891
✓ " 4 – Pair of Tarsi Bones
89.1891
✓5 – Pair of Foot bones
90.1891
✓ " 6 — ?
91.1891
✓ " 7 — ?

Note These bones of the Dodo came from a Mʳ. Clark a Schoolmaster in the Mauritius _(who took a great interest in discovering remains of this extinct bird in that country)_ to a Mʳ. Nicholas Waterhouse of England _ this latter gentleman gave them to Mʳ. Joseph Clark in exchange for some autographs, about 30 years ago. . The Mʳ. Clark . schoolmaster of the Mauritius alluded to above was the first discoverer of the bones of the Dodo in that country. In England the earliest collection of miscellaneous objects worthy of the name of a museum was those collected by the two John Tradescants, father and son, the latter of whom published some account of this museum in a little work called "Musæum Tradescantianum," or a collection of rarities preserved at South Lambeth near London." It appears that in this collection was at the time among the stuffed birds ~~was~~ the famous "Dodo" or as it was then printed "Dodar from the Island Mauritius; it is not able to fly, being so big." This is the identical specimen, the head and foot of which has passed through the Ashmolean into the University Museum of Oxford (see page 187). A paper was read at the Zoological Society. by Professor Owen in January 1866 – W.P. – see Notes & Queries May 15 1869. Birds allied to the Dodo.. Didunculus – a genus of birds found in the South Sea Islands. Ganthodon a genus of birds described by Sir W. Jardine from a specimen which belonged to Lady Harvey, supposed to belong to the Dodo family. Solitare [*sic*] – the name given to an extinct species of Dodo.



Saffron Walden Museum accession register C, p.192 (© Saffron Walden Museum).

Page 231A letter from Nicholas Waterhouse to Joseph Clarke:

Victoria Hotel, Euston
Square, N W, 20 May 1867
My dear Sir
Your letter of the 18th
has reached me in London this
evening. In reply I must
state that I do not intend to
sell the Dodo bones, which were
left with M^r^ H Ecroyd Smith.[51]
One way or another I have a
good many miscellaneous
specimens of various kinds,
but I have now no collection
in which I take much interest
except in my autographs, and
I do not see how we could ex-
-change old bones for old
letters –
I do not know whether you
are aware that the Dodo bones

which have recently been
received from Mauritius
were discovered by a gentle
-man who bears a name not
very different from yours, that
of Clark – by birth he was a
member of the Society of
Friends – I believe Prof.
Owen has just written a
paper on this extinct bird.
I hope to be in Liverpool
some time next week.
I remain
Yours very truly
N Waterhouse

Joseph Clark Esq
Rock Ferry

[the envelope bears the postmark: "BIRKENHEAD B 21MYC7" and the address "Rock Ferry Birkenhead"]

---

[51] Henry Ecroyd Smith (1823-1889). Botanist and historian, Curator of the Historic Society of Lancashire and Cheshire 1869-1875. He exhibited antiquraian objects and presented a paper at the meeting of the Archæological Section of the Historic Society of Lancashire and Cheshire, held on 2nd May 1867. At this same meeting Waterhouse exhibited several dodo bones (see Bolton Museum).

> note –at the time of writing of this letter M^r Clarke
> was staying with M^r. Mayer of Liverpool and
> Pennant House – Bebbington and was partly
> engaged at the Liverpool Museum.

Joseph Mayer was a citizen of Liverpool and had a property at Bedington.

Page 231A (Waterhouse exchange):

> ultimately Mr Waterhouse gave the bones alluded to
> to M^r Joseph Clarke in exchange for autographs which were
> apparently of more interest to him than the bones. This
> I gathered from M^r Clarke himself in 1891 when he gave them
> to the museum G N M.
> note – The Copenhage cast came to M^r Joseph Clarke through Professor
> Warsae of Copenhagen, who was sent to England by the King of
> Denmark to study archaeology – communicated by M^r Clarke
> in 1891 G N M

"G N M" is George Nathan Maynard (1829-1873), the first paid curator of Saffron Walden Museum 1880-1904. Also on p.231A is a clipping "The Dodo" 1871.

Label:

> Casts of all the remains known
> of the extinct Dodo.
> Head from the Ashmolean museum Oxford.
> Dissected head from the Copenhagen museum
> Foot from the British Museum.
> Dissected foot from the Ashmolean,
> Casts of portions from Liverpool Museum
> Presented by Mr Joseph Clarke July 15. 1891

[the latter was added in a different hand]

Page 232 (notes by Joseph Clarke):

> Dodo – Bustard &c
> I fear you will find me very slow I am much indebted to you for the
> photographs. all real notices of ~~Dobos~~ Dodo's are of great interest and especially
> so to me as I have a quantity of the bones of the bird brought from the
> Mauritius by a name sake of mine and I believe casts of all the others
> that had reached England nine or ten years ago also of the London and
> Oxford head and feet – I am sorry you had the expense of photography [or photographs]
> as had I known, I could have made a fac simile that I think would
> have satisfied you, and much obliged to you for your promptness and care in
> returning it – I did not obtain either of the Bustards, [...]
>
> The above are notes of M^r Joseph Clarke
> for a letter to either M^r Newton Prof of Ornithology
> or to M^r Roach Smith.
> G N M. 1895

"M^r Roach Smith" was the antiquary Charles Roach Smith (1807-1890).

Ipswich Museum

A cast of the Tradescant head was donated to Ipswich Museum in 1847 (*Ipswich Journal*, 24th December 1847). However, there is no further information regarding this specimen and there are no other dodo specimens in the Ipswich Museum collecltions (Ann Ainsworth, pers. comm., 8th August 2012).

Norwich and Bury St. Edmunds

In a letter of 4th November 1865 to his brother, Alfred, Edward Newton proposed to send bones to Norwich, Bury St. Edmunds and Ipswich (see Transcriptions). However, there is no record of dodo bones at Bury St. Edmunds (Chris Mycock, pers. comm., 3rd August 2012) or Norwich (or indeed any museums in Norfolk: David Waterhouse, pers. comm., 6th August 2012).

Warwickshire Museum

Warwickshire Museum, The Butts, Warwick CV34 4SS. Osteology Section of the Natural History Deptartment.

Raphus cucullatus

319/OCNH [Old Collection Natural History] cast of the Tradescant head (Jane O'Dell, pers. comm., 7th September 2010, 21st September 2010). In the "Thirty-Sixth Annual Report of the Council of the Warwickshire Natural History and Archæological Society to the Subscribers, read at the Anniversary Meeting, April, 5, 1872", under the donations to the museum and library is listed a "Cast of the Head of the Dodo in the Museum at Oxford. *Presented by the Rev. A. Bloxam*" (Anon. 1872, p.69). The "Rev. A. Bloxam" was the naturalist Andrew Bloxam (1801-1878).

Rugby School Museum

Rugby School, Rugby, Warwickshire, CV22 5EH

Raphus cucullatus

"Rugby School Museum has acquired, through the generosity of the Hon. E. C. Fraser,[52] a collection of bones of the Dodo and Solitaire" (Woodward 1908, p.476). The bones are currently in storage but there are plans to put them on display (Rusty MacLean, pers. comm., 5th November 2010; 4th May 2012).

It was noted at that the meeting of 17th March 1878 Matthew Holbeche Bloxham exhibited a cast of "a Dodo's head" (Sidgwick & Wilson 1878, p.2). This cast is still in the museum collections (Rusty MacLean, pers. comm., 18th September 2012).

Leicester Arts and Museum Service

New Walk Museum & Art Gallery, 53 New Walk, Leicester LE1 7EA

Raphus cucullatus

LEICT Z10.1855 (accession number) painted plaster cast of the Tradescant head (now damaged). Donated on 24th January 1855 by Mrs. Evans to the Leicester Town Museum (which developed from the Museum of the Leicester Literary and Philosophical Society) (Mark Evans; pers. comm.,

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[52] Edward Cleather Fraser (b.1855), father of James Howie Fraser, a pupil at the school 1901-1906. E. C. Fraser's address was: The Castle, Beau Bassin, Mauritius (Rusty MacLean, pers. comm., 4th May 2012). He was a Mauritian-born merchant. He departed from Mauritius, but returned in 1876 and became a member of the Council of Government of Mauritius in 1902.

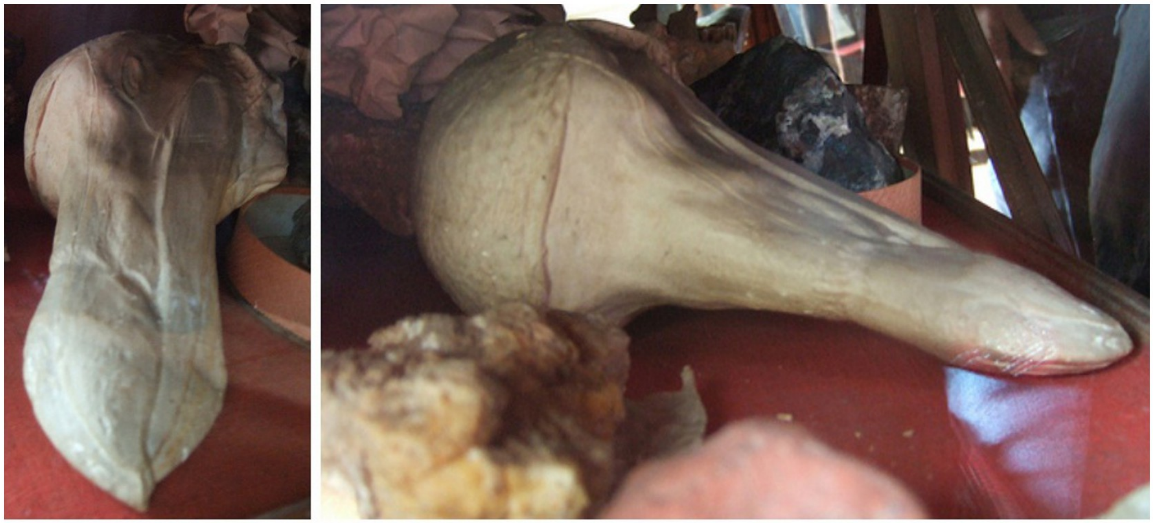
3rd July 2012). In the “Donations to the Museum, from June 19, 1854, to June 19, 1855” it was noted that Mrs. Evans donated a “Cast of the head of the “Dodo,”” (Anon. 1855f, p.18).

Calke Abbey

Calke Abbey, Ticknall, Derby, Derbyshire DE73 7LE

Raphus cucullatus

Uncoloured plaster cast of the Tradescant head. Probably not a first generation cast. It is displayed in a cabinet made in the late eighteenth century in the billiards room at Calke Abbey. The fossils and minerals displayed with the cast were assembled by the natural history collector Vauncey Harpur Crewe (1846-1924) *c.*1879 (Riannon Simpson, pers. comm., 8th November 2011).



Cast of the Tradescant head at Calke Abbey (© Lady T 220, 19th March 2010).

World Museum, Liverpool

World Museum Liverpool, William Brown Street, Liverpool L3 8EN. (Formerly the Derby Free Public Museum, later the Liverpool Museum). Department of Zoology.

Raphus cucullatus

3221 loose bones, mounted skeleton & plaster moulds listed 1.66.01-1.66.128. Accession numbers: 1981.1440 and 1981.1441.[53] This is probably the material collected and presented by H. P. Higginson to the Derby Free Public Museum on 20th March 1866 (under Stock Book number 20.3.1866), but this is not completely certain (Clem Fisher, pers. comm., 1st November 2008). The skeleton comprises a mandible, seven mid-cervical vertebrae, two fragmentary ribs (lacking proximal ends), left and right scapulae, left and right coracoids, sternum (lacking caudal extremity), left and right humeri, pelvis (lacking cranial and caudal ends), left and right femora (right damaged distally), tibiotarsi, fibulae and tarsometatarsi (left broken distally). The pedal phalanges are carved from wood (Clem Fisher, pers. comm., 1st November 2008), probably in the Victorian period. Likewise, the first metatarsals appear to be fabricated. The skeleton is probably composed of bones donated by Higginson, as he states: “I sent a box full [of bones] to the Liverpool, York and Leeds museums from which, in the former, a complete skeleton was erected” (Higginson: “Reminiscences of Life and Travel 1859 1872”, page dated “19 Oct 1865”). The skeleton was put on display in the atrium of the museum for a month from 11th September

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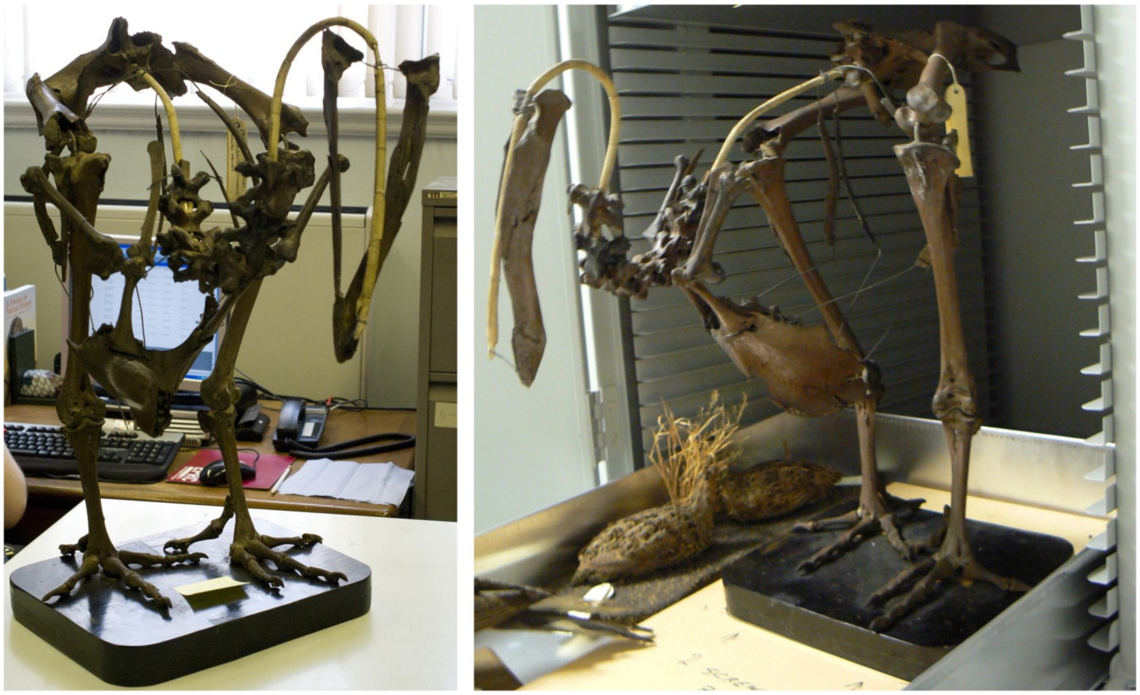
[53] 1981.1440 comprises the possible Higginson material, including loose bones, the mounted skeleton and plaster moulds listed 1.66.01-1.66.128. 1981.1441 are various fragments with no data, that is, they are not marked 1.66. as the above specimens (Clem Fisher, pers. comm., 28th February 2011).

2009 as part of the “Hidden Treasures” series (Weston 2009; Anon. 2009). It had not been on display for the previous 40 years. Figured: Anon. (2009).



3221 (*left*: © Charlie Meecham, September 2012; *right*: © Clem Fisher, World Museum Liverpool).

3222 eleven fragments of left mandible, fibula, sternum, two fragments of pelvis, three fragments of humerus, nine fragments of vertebrae, coracoid, two fragments of femur, two fragments of tibiotarsus, eight fragments of tarsometatarsus. Accession number: 1981.1441.

1981.1441 and loose bones of 1981.1440:
fragment of ?beak
symphysis and distal end of left mandibular ramus (with handwritten label attached: “Dodo Part of lower mandible, mainly RHS.”)
symphysis and distal end of right mandibular ramus
middle portion of left mandibular ramus
middle portion of left mandibular ramus
middle portion of right mandibular ramus (with handwritten label attached: “DODO Part of lower mandible, LHS.”)
middle portion of right mandibular ramus
proximal portion of left mandibular ramus (with handwritten label attached: “Dodo Base of Beak, RHS (lower mandible)”)
proximal portion of left mandibular ramus
proximal portion of left mandibular ramus
proximal portion of right mandibular ramus
five mid-cervical vertebrae (on string)
three mid-cervical vertebrae
sagittally-sectioned cf.12th cervical vertebra (left half; bearing ‘A’). See below
right coracoid (with handwritten label attached: “Dodo, ~~ste~~ coracoid, LHS”)
sternum (lacking left costal margin, part of right costal margin, and caudal extremity)
proximal end of left humerus (with handwritten label attached: Dodo Base of humerus. RHS (→ coracoid & scapula end)”)
distal end of right humerus (with handwritten label attached: “Dodo Base of humerus, LHS (→ Radius/ulna)”)

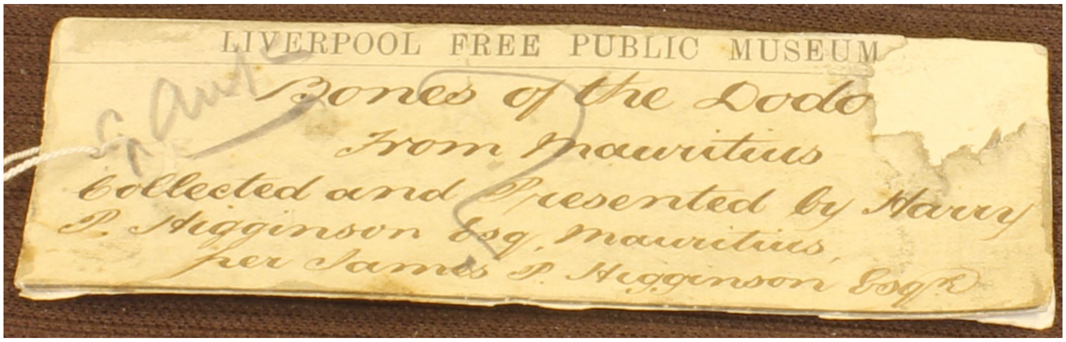
shaft of right humerus (with handwritten label attached: “Dodo Part of humerus, LHS”)
pelvis (lacking cranial extremity and caudal end)
pair of femora (left with handwritten label attached: “Dodo: Femur, Right”; right with handwritten label attached: “Dodo: Femur, Left”)
left tibiotarsus (with handwritten label attached: “Dodo: Tibia, Right”)
right tibiotarsus (with handwritten label attached: “Dodo: Tibia, Left”)
left fibula
two left tarsometatarsi
two left tarsometatarsi (one with handwritten label attached: “Dodo, Right Tarsus”)
two left tarsometatarsi (one with handwritten label attached: “Dodo, Right Tarsus”)
left tarsometatarsus (with handwritten label attached: “Dodo, Right Tarsus”)
right tarsometatarsus (with handwritten label attached: “Dodo, Left Tarsus”)

rostrum (damaged distally and lacking most of dorsal nasal bar, right maxilla and caudal end of left maxilla; bearing ‘.1.66.3’ in black ink)
proximal portion of right mandibular ramus (bearing ‘1.66.4.’ in black ink)
proximal portion of right mandibular ramus (bearing ‘.1.66.6.’ in black ink)
middle portion of mandibular ramus (bearing “1.66.7.a ?” in black ink)
middle portion of left mandibular ramus (bearing ‘1.66.15.’ in black ink)
middle portion of left mandibular ramus (bearing ‘1.66.16.’ in black ink)
middle portion of left mandibular ramus (bearing ‘1.66.17.’ in black ink)
middle portion of left mandibular ramus (bearing ‘1.66.18.’ in black ink)
middle portion of left mandibular ramus (bearing ‘1.66.21.’ in black ink)
middle portion of ?left mandibular ramus (bearing ‘1.66.22.’ in black ink)
middle portion of right mandibular ramus (bearing ‘1.66.23’ in black ink)
middle portion of right mandibular ramus (bearing ‘1.66.25.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.28.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.29.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.34.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.35.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.42.’ in black ink)
mid-cervical vertebra (bearing ‘1.66.51.’ in black ink)
mid-cervical vertebra
sagittally-sectioned mid-cervical vertebra (left half only; marked ‘B’)
sagittally-sectioned 12th cervical vertebra (right half only). See above
posterior cervical vertebra (cf. 12th or 13th)
vertebral rib (lacking proximal extremity; bearing ‘1.66.124.’ in black ink)
sternal rib (bearing ‘1.66.127’ in black ink)
sternal rib (bearing ‘1.66.128.’ in black ink)
rib fragment (bearing ‘1.66.122.’ in black ink)
rib fragment (bearing ‘1.66.123’ in black ink)
left scapula (bearing ‘1.66.112.’ in black ink)
left scapula (lacking distal extremity; bearing ‘1.66.113.’ in black ink)
left scapula (lacking distal extremity; bearing ‘1.66.115.’ in black ink)
left scapula
right coracoid (bearing ‘.1.66.106.’ in black ink)
furcula (not belonging to *Raphus*) (lacking proximal end of left ramus; bearing ‘1.66.60.’ in black ink)
right humerus (lacking proximal end; bearing ‘1.66.118.’ in black ink)
pelvis (lacking cranial extremity and caudal end; bearing ‘1.66.56.’ in black ink)
pelvis fragment (region ventral to obturator foramen)
two left and one right tibiotarsi (right and one left damaged proximally; one left bearing ‘1.66.77.’ in black ink) + fragment
two right tibiotarsi
left fibula (lacking distal extremity)
left fibula (bearing ‘1.66.96.’ in black ink)
left fibula (bearing ‘1.66.99.’ in black ink)

right fibula (lacking ditsal extremity; bearing ‘1.66.90’ in black ink)
right fibula (bearing ‘1.66.94.’ in black ink)
?right fibula (bearing ‘1.66.93’ in black ink)
fibula
?fibula? (bearing ‘1.66.95 [or .45]’ in black ink)
one left and two right tarsometatarsi (left bearing ‘1.66.84.’ in black ink)

Accompanying label:

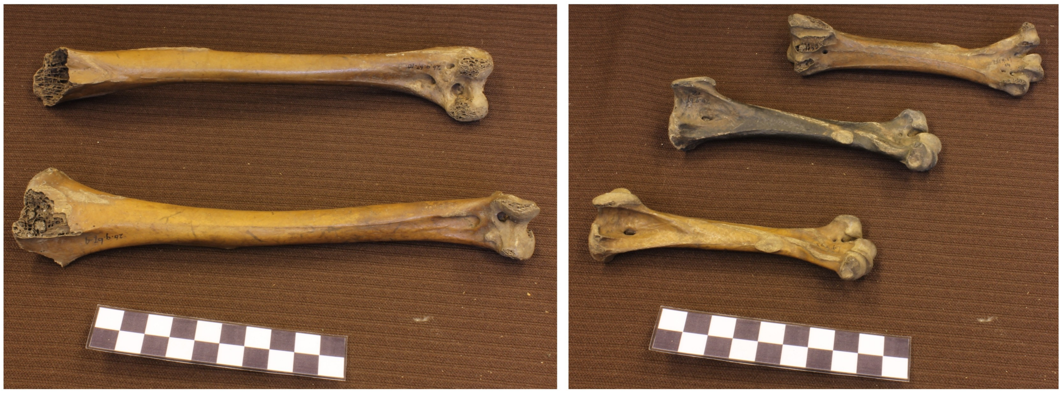
LIVERPOOL FREE PUBLIC MUSEUM
Bones of the Dodo
From Mauritius
collected and Presented by Harry
P. Higginson Esq. Mauritius.
per James P. Higginson Esq.



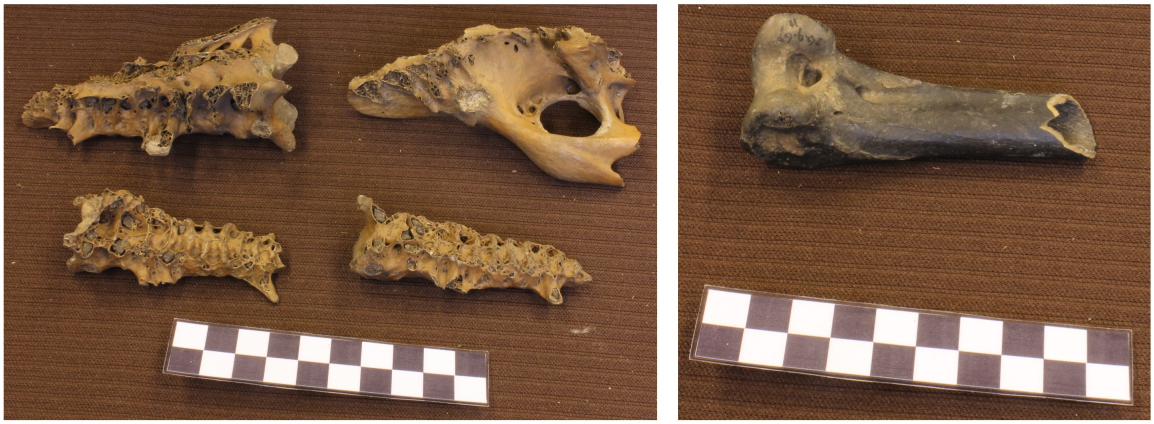
LIVERPOOL FREE PUBLIC MUSEUM
Bones of the Dodo
From Mauritius
Collected and Presented by Harry
P. Higginson Esq. Mauritius.
per James P. Higginson Esq.

Label accompanying the bones (© David Gonzalez, June 2012).

3223 bones. Donated by Walmsley Stanley, 26th September 1867. Accession number: 26.9.67.1-14. The bones are: mandibular symphysis (bearing ‘26.9.67-1’ in black ink), fragment of mandibular ramus + fragment (bearing “26.9.67. 2.” in black ink), cranial portion of synsacrum, cranial portion of synsacrum (bearing “26.9.67 5” in black ink), cranial portion of synsacrum (bearing “26.9.67 7” in black ink), right ilium and acetabular region, right tibiotarsus (damaged proximocranially; bearing ‘26.9.67-9’ in black ink), left tibiotarsus (lacking proximal extremity; bearing ‘26.9.67-10.’ in black ink), distal end of left tibiotarsus (bearing “26.9.67 11” in black ink), left tarsometatarsus (bearing ‘26.9.67’ in black ink), right tarsometatarsus (bearing “26.9.67 12” in black ink) and right tarsometatarsus (bearing “26.9.67 14” in black ink). ‘26.9.67-1’ and “26.9.67. 2.” are kept in a “LLOYDS’ Old Holborn Blended Virginia” tin.



3223: *left*: ‘26.9.67-9’ and ‘26.9.67-10.’; *right*: “26.9.67 14”, “26.9.67 12” and ‘26.9.67’ (© David Gonzalez, June 2012).



3223: *left*: “26.9.67 5”, cranial portion of synsacrum, “26.9.67 7” and right ilium and acetabular region; *right*: “26.9.67 11” (© David Gonzalez, June 2012).

3223: ‘26.9.67-1’ and “26.9.67. 2.” (© David Gonzalez, June 2012).

3224 casts of the Tradescant foot. Re-glued at OUM 1994. Donated by Joseph Clarke, 5th August 1867. Accession number: 5.8.67.1. (see above: Saffron Walden Museum).

The specimens were catalogued by Fisher *et al*. (1999). Hume *et al*. (2009) noted that Higginson donated dodo bones to Liverpool and that the museum houses the specimens and original correspondence. In a letter to Alfred Newton, dated 4th February 1866 (24/3, p.240), Edward Newton referred to bones given to the museum by Higginson: “The Liverpool bones were I believe sent by a man of the name of Higginson. I believe they are a very good lot. As many as Clark sent and perhaps among them some that he has not got" (quoted in Hume *et al*. 2009, p.38). These had apparently been sent to the museum several weeks prior, as the mention was a reply to an enquiry by Alfred (*ibid*.). Hume *et al*. (2009) thus concluded that the museum's receipts are not complete.

It was reported that at the Thirteenth Meeting of the Literary & Philosophical Society of Liverpool, held at the Royal Institution, on 5th May 1845 "Mr. James Lowe presented to the Society, a Cast of the head of the Dodo,–which was stated to be the only portion of that bird existing in the British Museum" (Anon. 1845, p.97).

At the Seventh Ordinary Meeting of the Literary and Philosophical Society of Liverpool, held at the Royal Institution on 22nd January 1866, "Mr. Moore[54] also announced that a very fine collection of Dodo and other bones, from the Mauritius, had lately been presented to the Derby Museum, by Mr. James P. Higginson, on behalf of his nephew, Mr. Harry P. Higginson, resident engineer of railway works in that island. An early opportunity would be taken of bringing these most remarkable and interesting specimens before the notice of the Society" (Redish 1867; p.110). In an article published in a Liverpool paper around 1891 Moore recalled: "once on a time I was called from my mid-day chop to inspect a collection of Dodo bones, which I bagged for the museum before I finished that chop, and sorted and matched and named before I supped at two in the morning" (quoted in Howarth 1893, p.54).

At the meeting of the Liverpool Geological Society, held on 13th March 1866, "Mr. Moore [exhibited] numerous bones of the Dodo, from the Mauritius, almost sufficient to make up a skeleton of that bird" (Anon. 1866j, p.46). These were the Liverpool Museum specimens, donated by Higginson (Woodward *et al*. 1866).

At the Fourteenth Ordinary Meeting of the Literary and Philosophical Society of Liverpool, held at the Royal Institution on 30th April 1866,

> Mr. T. J. Moore exhibited and made some remarks upon the mounted skeleton of the Dodo, formed from the series of bones from Mauritius collected by Mr. Harry P. Higginson, and presented by him (through the kind offices of Mr. James P. Higginson) to the Derby Museum, and which in their dismounted state were brought before a recent meeting of the society. The skeleton needed only the hinder put of the cranium, the toe bones, and a few ribs and vertebræ to make it perfect. The *furculum* and a few other bones had been lent to Professor Owen, to aid him in the preparation of his forthcoming monograph on this extinct bird.
>
> The following note was received with these valuable and most interesting remains:–
>
> "Mahebourg, Mauritius,
> "*November 5th*, 1865.
>
> "The accompanying bones, belonging without doubt to the Dodo, were found in a *peat bog*, within a mile of the sea coast, and owe their wonderful state of preservation, I fancy, to the well known preserving qualities of peat.
>
> "These bones must be at least two hundred years old, as I believe the Dodo has been extinct for that length of time.
>
> "Though once the Dodo was to be found anywhere in Mauritius, no bones have ever been found up to within the last five weeks. They were found in the following manner:
>
> "Mr. Du Bissy, the owner of the bog (called the *Mare des Songes*) in which the bones were found, had a lot of the peat soil taken out for manure; some bones having been found, Mr. Clarke's attention was called to them. They proved to be the bones of a species of Turtle, now extinct in Mauritius. He prosecuted a fresh search, and found the bones of the Dodo, which have, I believe, been sent to the British Museum. I had men searching for them in conjunction with him, and succeeded in finding a great many bones that were still wanting to complete a skeleton.
>
> (Signed)

---

[54] Thomas John Moore (1824-1892), first curator of The Derby Museum, from 1853, and the Free Public Museum from 1860.

> "Harry P. Higginson" (Redish 1867, pp.231-232).

In the Fourteenth Annual Report of the Committee of the Free Public Library, Museum, and Gallery of Arts, Anon. (1866e) mentioned donations to the museum of "A most important collection of bones of the Dodo, arm-bones of the Flying Fox (*Pteropus*), and sundry other bones, from Mauritius; collected and presented by Harry P. Higginson" (p.12).

At the evening Conversazione of the Liverpool Chemists' Association, held on 15th March 1866, "a collection of dodo bones from Mauritius, collected and presented by Harry P. Higginson, Esq." were exhibited. These had been lent by Thomas J. Moore of the Derby Museum (Anon. 1866k, p.567).

In the Derby Free Public Museum there was a "fine skeleton of the dodo" presented by Higginson (J. P. E. 1870, p.389).

Forbes & Robinson (1900, p.148) listed:

> PEZOPHAPS, *Strickl*. (Extinct).
> solitarius (*Gm*.). Sundry bones. Rodriguez.
> DIDUS, *Linn*. (Extinct).
> ineptus, *Linn*. Cast of head and foot. Imperfect skeleton articulated and numerous detached bones. Mauritius.

Hume *et al*. (2009) stated that one of Owen's plates (Owen & Broderip 1866, p.53, pl.v) figured two vertebrae borrowed from Higginson's donation, "presumably via curator Thomas John Moore (1842-1892) [*sic*] and honorary director, Rev. Henry H[ugh] Higgins [(1814-1893)] (Clem Fisher, Personal communication to J.P. Hume 03.02.09)" (p.41).

Tristram's manuscript catalogue (see below) lists dodo material: "9331. Didus ineptus L. Mauritius. Portions of skeleton. E. Newton" (Clem Fisher, pers. comm., 10th December 2010). However, the entries in Tristram's printed and manuscript catalogues do not accurately correspond to the contents of the present collections (*ibid*.).

Anon. (1867c) listed the museum's exchanges:

> A Set of Casts of Dodo Bones, and duplicate specimens of Hydrozoa, &c., sent to Professor Allman,[55] University Museum, Edinburgh. [See Royal Museum of Scotland, Edinburgh, below]
>
> A Set of Casts of Dodo Bones, a Footprint, and two Casts of Footprints of Cheirotherium, sent to Dr. Anderson, Quebec Museum.[56]
>
> [...]
>
> A Set of Casts of Dodo Bones, sent to Dr. Burmeister, Director of the Museum, Buenos Ayres.[57]
>
> A set of Casts of Dodo Bones, sent to Dr. W. H. Campbell, Museum, George Town, Demerara.
>
> A Cast of the Foot Bones of the Dodo (from the original in the Oxford Museum), received from Mr. Joseph Clark, F.S.A., Saffron Walden, in exchange for a set of Casts of

---

[55] George James Allman (1812-1898) M.D., FRS. Irish naturalist. Emeritus Professor of Natural History in Edinburgh until 1870.

[56] Possibly Dr. William James Anderson (1812-1873), physician, amateur geologist and historian of Quebec City. He had studied medicine at Edinburgh and was a member of the Literary and Historical Society of Quebec. Anderson led a group of members who revived the society and re-established its library and museum.

[57] Probably Carl Hermann Conrad Burmeister (1807-1892) of the Museo Nacional (founded in 1823 as the Museo Público). Naturalist

> Dodo Bones (p.15). [However, see above: Saffron Walden Museum]
>
> A Slab of *Eozoon Canadense*, and fifty Lower Silurian Fossils, received from the Rev. Dr. Dawson,[58] McGill University, Montreal, in exchange for a set of Casts of Dodo Bones, a *Callorhynchus*, and specimens of British Cephalopoda.
>
> Two native stuffed specimens of the Susu, or Ganges Porpoise (*Platanista Gangetica*), and their Skeletons, received from the Delhi Museum, per Major MacMahon; through the kind offices of Captain Gordon, 98th Regiment, and Mr. Samuel Archer, 98th Regiment,[59] in exchange for a set of Casts of Dodo Bones, and of Orang and Gorilla Skulls, and eighty-eight specimens of twenty-nine species of Fish and Crustacea.
>
> [...]
>
> Two Stuffed Salmon, and a set of Casts of Dodo Bones, sent to the Government Central Museum, Madras (p.16). [See Government Central Museum, Madras, below].

Anon. (1868c) listed the donations to the museum:

> Fourteen Bones of the Dodo, one of a Wading Bird, and two Reptile Bones, from Mauritius; presented by Mr. Walmsley Stanley (p.13).

and the museum's exchanges:

> Three Slabs of Fossil Fish, from the Orkneys, and an Axolotl, received from the Andersonian Museum, Glasgow, in exchange for a set of Casts of Dodo bones (p.15).

Anon. (1868d) noted that at the First Ordinary Meeting of the Literary and Philosophical Society of Liverpool, held at the Royal Institution on 21st October 1867, "Mr. T. J. Moore exhibited some bones of the Dodo, lately presented to the Free Public Museum, by Mr. Walmsley Stanley, per Mr. R. C. Doyle and Mr. J. T. Towson; also the cast of the under jaw of a Mastodon" (p.5).[60]

Anon. (1872a) listed the museum's exchanges:

> A Set of Casts of Dodo Bones, sent to Professor Williams, Cleveland, U.S.A. (p.15).

The following is a list of moulds of dodo bones borrowed from Liverpool Museum by the OUM (loaned from 22nd February 1994 to 22nd August 1994: OUM records; see also OUM):

1.66.31-33 casts of vertebrae
1.66.54 cast of pelvis
1.66.58 cast of sternum
1.66.60 cast of left femur
1.66.60 cast of left and right clavicles
1.66.62 cast of right femur
1.66.72 cast of right tibiotarsus
1.66.75 cast of left tibiotarsus
1.66.83 cast of right tarsometatarsus

---

[58] John William Dawson, LLD, FRS, FGS, Principal and Vice-Chancellor of McGill University, Honorary member of the Liverpool Literary and Philosophical Society, Honorary Member of the Geological Association, Liverpool. He attended the meeting of the BAAS at Birmingham in 1865 and afterwards met Acland and Rolleston at Oxford.

[59] Probably Lieutenant Alex. Her. Adam Gordon and Assistant Surgeon Samuel Archer.

[60] John Thomas Towson (1804-1881), F.R.G.S., scientific writer was a member of the Literary and Philosophical Society of Liverpool. "Mr. R. C. Doyle" may have been Ront. Cunningham Doyle, merchant (The Liverpool Commerical List, *Seyd and Co*., 1866).

1.66.86 cast of left tarsometatarsus
1.66.91 cast of right fibula
1.66.102 cast of left fibula
1.66.110 cast of right humerus
1.66.119 cast of left humerus
1.66.120-126 casts of ribs
(see also OUM, Saffron Walden Museum, Royal Museum of Scotland, Hunterian Museum (Glasgow), Naturmuseum Senckenberg, Museum für Tierkunde, Redpath Museum, AMNH, Government Central Museum (Madras), Buenos Ayres, Georgetown (Demerara, Guyana), Delhi Museum, Professor Williams (Cleveland)).

Walmsley Stanley's Collection

Walmsley Stanley, Chief Resident Engineer on Mauritius and formerly an engineer on the Leeds and Liverpool Canal, had a collection of dodo bones, from which Edward Newton exhanged several tibiotarsi for a humerus (letter from Edward Newton to Alfred Newton, 4th February 1866, 24/3, p.237, *ex* Hume *et al*. 2009). See also Parish (2013, pp.244, 245).

Pezophaps solitaria

3220 "Skeletal material from both male and female birds. Over 50 specimens, some dated 1866, some 1871" (Fisher, Parker & Roberts 1999, p.143). Accession number: T.9598. Donated by Henry Baker Tristram, 2nd April 1896. In the catalogue of his collection, Tristram (1889) listed the bones as follows:

> *a*. ♂ femur, tibia, fibula, metatarsus (2), humerus, ulna, radius, carpal; fragments of pelvis, lower jaw, and beak; coracoid, scapula, 16 vertebræ out of 18, 1st and 2nd hallux, and various smaller bones.
>
> *b*. ♀ femur (2), tibia, fibula, metatarsus, 1st hallux, humerus (2), ulna, radius, carpal, fragments of pelvis (2), quadrate, coracoid, scapula. Rodriguez Island. – Sir Edw. Newton (p.37).

Tristram's manuscript catalogue also lists solitaire material under the number 9598. The solitaire specimens seemingly arrived at Liverpool in 1896 with the rest of the Trstram Collection, presumably also including the dodo material (Clem Fisher, pers. comm., 10th December 2010; but see above).

T9598 (data from David Gonzalez, June 2012):
cervical and dorsal vertebrae (on string): axis, 3rd-18th vertebrae (notarium with distinct junction between 15th and 16th; 17th lacks dorsal extremity and is detached; one mid-cervical vertebra is also damaged and detached)
synsacrum (damaged)
left scapula (♂; bearing '1871' in ink)
left scapula (♀; bearing '1871' in ink)
left coracoid (bearing '1866' in ink)
left humerus (♂; bearing '1866' in ink)
left humerus (♀; bearing '1866' in ink)
left humerus (?♂; lacking proximal end)
radius (?♂; bearing '1871' in ink)
radius (bearing '1871' in ink)
left ulna (bearing '1871' in ink)
right ulna (bearing '1871' in ink)
pelvis (comprising synsacrum (lacking caudal extremity) and left acetabular region)
left acetabular region of pelvis (marked '♀')
right acetabular region of pelvis (marked '♂')
left femur (bearing '1871' in ink)
left femur (bearing '1871' in ink)
right femur (?♀)
left tibiotarsus (bearing '1871' in ink)

left tibiotarsus (damaged proximally; bearing ‘1866’ in ink)
right tibiotarsus
right tibiotarsus (damaged proximally)
left fibula (bearing ‘1866’ in ink)
fibula (bearing ‘1866’ in ink)
left tarsometatarsus (bearing ‘1866’ in ink)
left tarsometatarsus (hypotarsus damaged; bearing ‘1866’ in ink)
right tarsometatarsus
right tarsometatarsus (damaged proximally)

Accompanying label:

> No. T9598
> † Pezophaps solitaria (Gmelin)
> SKELETAL MATERIAL 01-057

The Manchester Museum

The Manchester Museum, The University of Manchester, Oxford Road, Manchester M13 9PL

Raphus cucullatus

In 1867 a Mr. Plant[61] exhibited some dodo bones at the Monthly Meeting of the Manchester Geological Society, held at the museum on Peter Street on 26th February. He had received these bones from a friend who had visited Mauritius the previous year and had assisted in the search for dodo bones under the direction of George Clark. The bones consisted of mostly leg elements, caudal vertebrae and wing bones, belonging to at least fourteen individuals of nearly the same size. Most of these bones were pairs of tibiotarsi and tarsometatarsi, and some of them were very black and discoloured by the mud in which they had been found; he also stated the bones found were “wet, soft and tender, requiring care in handling”. Plant mentioned that he would present the bones to the Society as soon as he could make them complete (Anon. 1868e).

John Plant exhibited the bones at the meeting of the Literary and Philosophical Society of Manchester (Microscopical and Natural History Section), held on 12th February 1877: “The author exhibited the bones of a leg and foot of “*Dinornis Casuarinus*,” [...] and a number of bones of the *Dodo*, exhumed from fine black mud by his brother Mr. Francis Plant in 1869, near Port St. Louis, Mauritius” (Plant 1877, p.182).

Plant’s dodo specimens, as currently preserved in the Manchester Museum, do not include caudal vertebrae and merely consist of limb bones (Rebecca Smith, pers. comm., 11th March 2008). Plant’s specimens were not included in McGhie’s (2005) catalogue of dodo remains in the Manchester Museum, but have since been relocated (Henry McGhie, pers. comm., 24th January 2008). The cast of the Tradescant head was exhibited in the spring of 2012 in a special display. At least some of the bones were also on display.

The label accompanying the bones reads: “Bones of the extinct Dodo Mauritius Presented by E. W. Robinson Esq.”[62]

Data from McGhie (2005); identifications and descriptions of bones from pers. obs. from photographs.

---

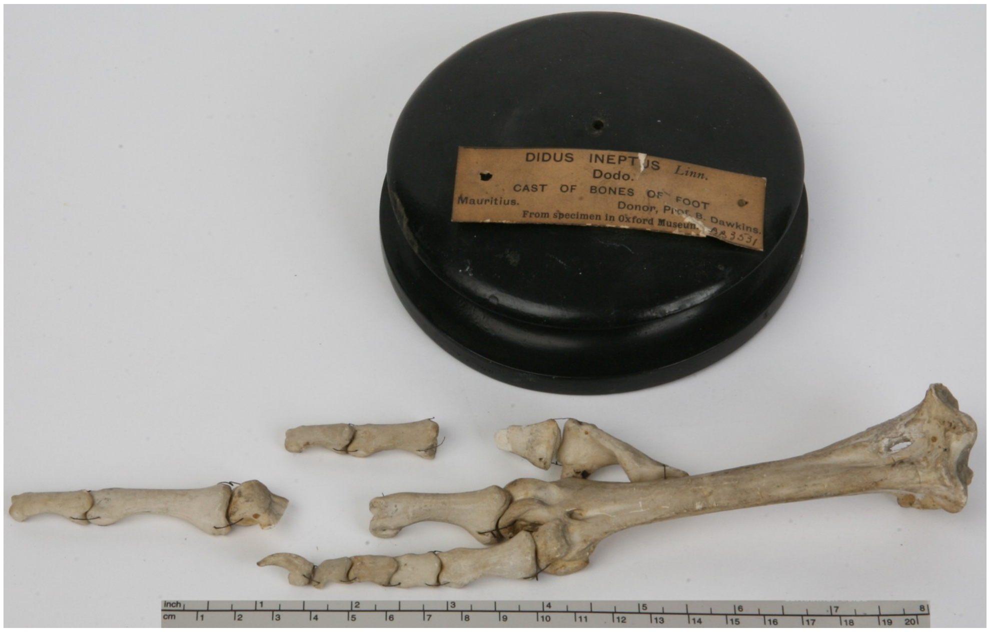
[61] Probably John Plant (1819-1894). FGS. Superintendent of the Royal Museum and Library, Peel Park, Salford, Manchester.

Frank Plant was apparently “a small-time trader” known to Edward Newton (Hume *et al*. 2009). Frank Plant’s agent in England was “Mr S[amuel] Stevens of 24 Bloomsbury St, London” (see below).

[62] Edward William Robinson (1835-1877). British watercolour artist and entomologist. He was the artist for the plate of *Didunculus* in Owen & Broderip (1866), as well as some of the lithographs of dodo bones (Owen 1867, pls.16, 18).

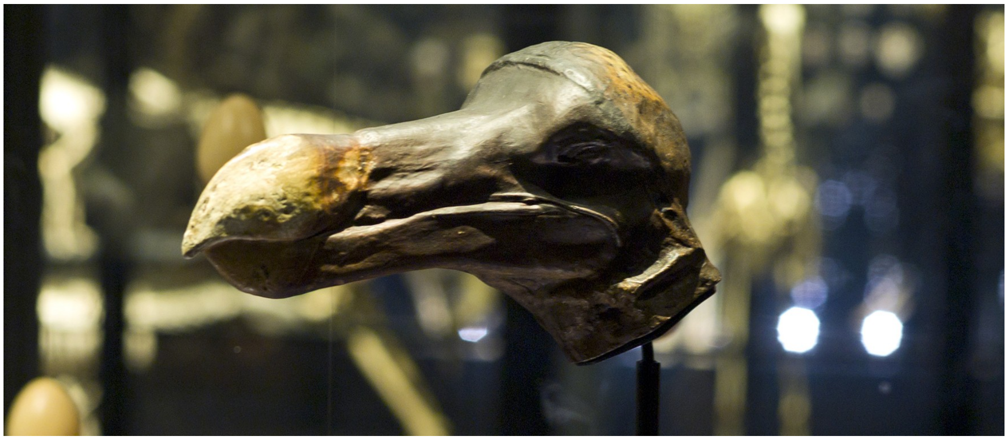
BB.3530 cast of foot, taken from specimen in the OUM, received from William Boyd Dawkins,[63] 1919.

BB.3531 coloured cast of the Tradescant foot skeleton (wired together, trochlea II and phalanx I of hallux broken), received from Boyd Dawkins (ex Richmond Museum) 1919. Label: "Didus ineptus *Linn*. Dodo. Cast of Bones of Foot Mauritius. Donor, Prof. B. Dawkins. From specimen in Oxford Museum." "BB 3531" (in ink).


DIDUS INEPTUS Linn.
Dodo.
CAST OF BONES OF FOOT
Mauritius. Donor, Prof. B. Dawkins.
From specimen in Oxford Museum.
BB3531
inch
cm

B.3531 (© The Manchester Museum).

BB.3532 cast of the Tradescant head, received from Boyd Dawkins 1919.



B.3532 (© Charlie Meecham, July 2012).

BB.3533 cast of tibiotarsus, received from Boyd Dawkins 1919.

BB.3534 cast of right tarsometatarsus received from Boyd Dawkins (ex Richmond Museum) 1919.

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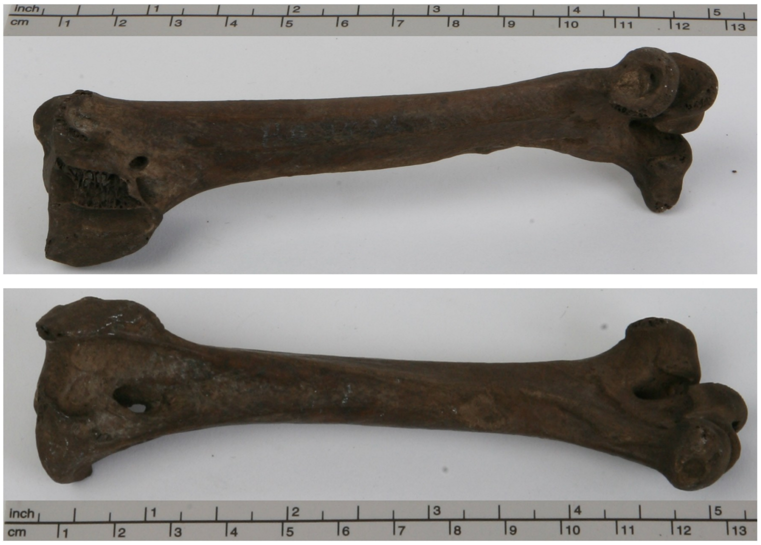
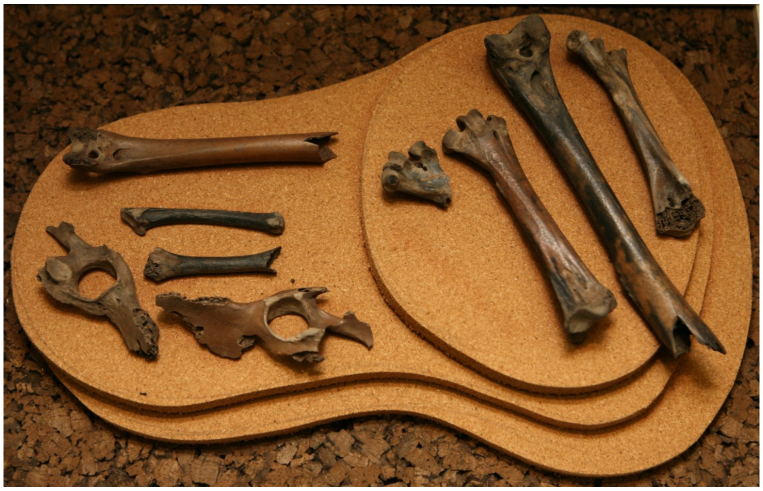
[63] William Boyd Dawkins (1837-1929). Professor of Geology, Owens College, Manchester. Curator of the Manchester Museum 1869-1890.



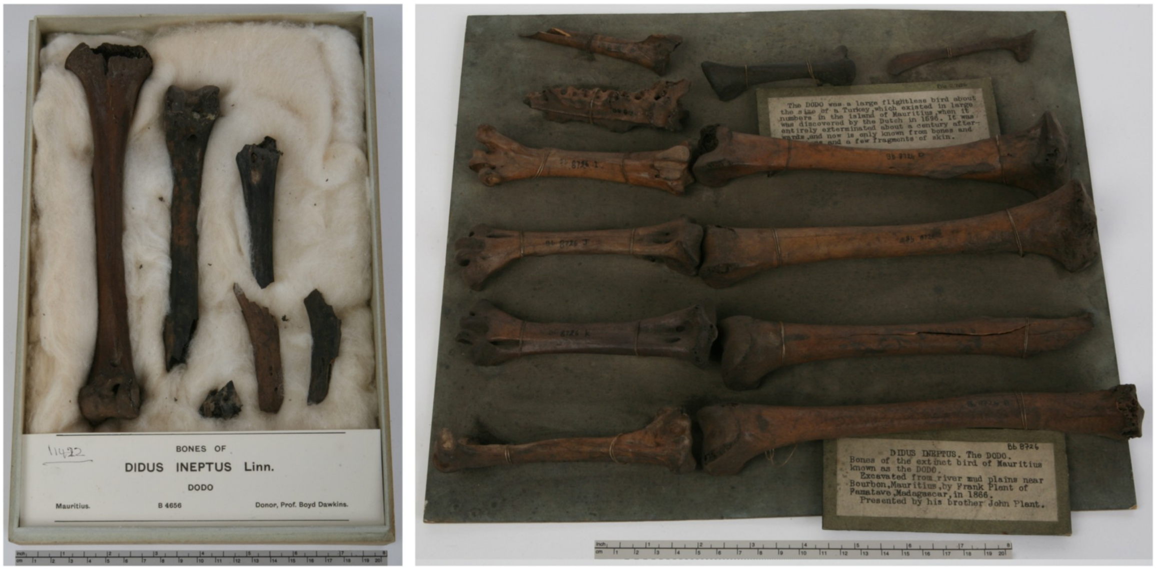
Cast of right tarsometatarsus (BB.3534) (© The Manchester Museum).

BB.8726 synsacrum (lacking caudal end), left scapula, ?coracoid (lacking omal end), ?right ?coracoid, left tibiotarsus (damaged proximally; 'A'), left tibiotarsus (lacking proximal end; 'B'), right tibiotarsus ('C'), right tibiotarsus ('D'), left tarsometatarsus, left tarsometatarsus ('K'), right tarsometatarsus ('I'), right tarsometatarsus ('J'). Bones bear "Bb 8726" (in ink). Label: "Didus ineptus. The Dodo. Bones of the extinct bird of Mauritius known as the Dodo. Excavated from river mud plains near Bourbon, Mauritius, by Frank Plant of Famatave ,Madagascar, in 1866. Presented by his brother John Plant."

BB.8920.5 (B.4656) bones received from Boyd Dawkins (ex Richmond Museum) 1904. On display in gallery: left humerus (damaged distally, lacking proximal end), right ulna, left acetabular region, right acetabular region, left tibiotarsus (lacking proximal end), right tibiotarsus (lacking proximal end), left tarsometatarsus (damaged proximally and distally), distal end of left tarsometatarsus, right tarsometatarsus. In storage: medial fragment of left mandibular ramus, medial fragment of ?right mandibular ramus, right tibiotarsus (damaged proximally), left tibiotarsus (lacking proximal end), left tarsometatarsus (lacking proximal extremity and distal end), damaged proximal end of right tarsometatarsus. Label: "Bones of Didus ineptus Linn. Dodo Mauritius. B 4656 Donor, Prof. Boyd Dawkins." '11422' (in ink). Label: "Bones of dodo Rhaphus [*sic*] cucullatus BB. 8920.5 nine bones 1/12/13."



BB.8920.5 (B.4656) (© The Manchester Museum).


11422
BONES OF
DIDUS INEPTUS Linn.
DODO
Mauritius.
B 4656
Donor, Prof. Boyd Dawkins.
The DODO was a large flightless bird about the size of a Turkey, which existed in large numbers in the island of Mauritius, when it was discovered by the Dutch in 1598. It was entirely exterminated about a century afterwards, and now is only known from bones and a few fragments of skin.
Bb 8726
DIDUS INEPTUS. The DODO.
Bones of the extinct bird of Mauritius known as the DODO.
Excavated from river mud plains near Bourbon, Mauritius, by Frank Plant of Famatave, Madagascar, in 1866.
Presented by his brother John Plant.

Left: BB.8920.5 (B.4656), *right*: BB.8726 (© The Manchester Museum).

The specimens derived from Richmond Museum may have been those sent to Edward Wood, as he had helped in the foundation of a museum of natural history at Richmond, Yorkshire (see letter from Edward W. Robinson to Edward Wood, 21st July 1867. The Manchester Museum: ZAC/1/125).

Letter from Edward W. Robinson to Edward Wood, 21st July 1867. The Manchester Museum: ZAC/1/125:

Sunday, July 21st 1867
My dear Sir
I have just returned
from Colchester where I have been a
few days. for the purpose of drawing
the transformations of a new silk
producing moth. which a friend of
mine. is endeavouring to rear in this
country. for the purpose of superseding
the old Bombyx Mori which is so
liable to disease, and I sit down
at once to answer y.r kind letter
and send you also some rough sketches
(which may interest you) of the species
most nearly allied to the Dodo. as
well as a description and history of
the bones I brought you. in April
last.

Allow me first of all to apologise
for my long silence. and I ask y.r
forgiveness for my seeming carelessness.
but I am sure you will accord it
to me when I tell you that since
April last to the present time I
have not had a single day to myself,

1.st With respect to the bones. and the way they came into my possession.

Although for years past naturalists ~~bones~~ had strong faith that the bones of the Dodo (Didus ineptus) would turn up in large numbers. in the island of Mauritius. still it was not till the ~~ye~~ Autumn of 1865. that my proof of ~~their~~ the soundness of their faith. came to light. when at that time some labourers employed in draining a swamp called the “Mare aux Songes” came upon a heap of bones. some of which coming accidentally into the hands of Mr Clark. a schoolmaster near port S.t Louis. it luckily struck him they might be the remains of the Dodo. and he wisely sent two or three to Professor Owen who at once determined them to be the bones [~~??~~] of the veritable and missing Didus ineptus.

On the answer arriving from the Professor however Mr Clark was in some difficulty respecting the necessary labour for continuing the researches after the missing links luckily. at this time my friend Mr William Ridley was there. as construct[?] and resident engineer of that portion of the new line of rail ~~now laid~~ ^ being made ~~there~~ ^ by Messrs Longridge and he very kindly lent two or three of the labourers when slack to search for the bones. and at the termination of the discoveries Mr Clark kindly sent a few to Mr Ridley who knowing my taste for Natural History sent a portion to his brother and some to myself.

This then is the way they came into my hands. perhaps a few remarks on the bones may not be uninteresting.

Of the numbers found I cannot say. but that a very large quantity came to light may be inferred from the fact. that at Stevens’s in March 66. upwards of 230 specimens were

sold. in 9. lots varying from £15 to
£3.10 each lot. that I had pass through
my hands. nearly 100. and the British
Mus~~u~~eum must possess at least 3
times that number. so I know of
~~at~~ about 600. and how many more
have been distributed in the island

and elsewhere there is no knowing.
Of the bones found these are the
principal. The Sternum the whole of
the lower mandibles, the pelvis
~~tarso- metat~~[?] tarso-metatarsus.
femurs. tibiæ~~s~~. scapulæ. fibulæ
vertebræ and a number of rib
bones. Of the upper mandibles and
skull. and small bones of the
feet nothing was found. and I
believe only one complete sternum
now in the British Museum.
The great peculiarities shown in these
specimens. testify to the heavy and
enormously muscular development of,
the creature. adapting it to a slow
and ambulatory. existence. rather than to
an arboreal one. enabling it to search
out the crustacea[?] and bivalves. it
lived on. which exist to the present
day. in the marsh where its bones
were found.
Of the ^ head of the only existing type of this
peculiar genus.. I send you a sketch
a front and side view. made by
myself from the specimen D.r Bennett
~~sent~~ forwarded to the Zoological Society. some time
back. from Australia. this bird (the Didunculus

is supposed to be the same described by
Sir W Jardine. under the name of the
Gnathodon strigirostris. but as I am not
sufficiently. an Ornithologist. to decide this
point. I shall leave it for those more
deeply read. only remarking one peculiarity
which is the perfectly horrible effect
the moveable upper beak gives to
the bird when yawning. and of which I
give a rough outline. A figure is given of
the bird in "Goulds birds of Australia" which
is pretty good except the legs which are
in the living specimen a livid red and

in his figure a light colour.
I send also a rough sketch of the
head of the Dodo. from a bad woodcut
and partly from memory.
I sincerely thank you for your kind
remembrance ~~of me~~ in letting me know
of y.^r projected excursion to Durham
on Wednesday. next so therefore if I
do so. I shall not have the opportunity
of joining you. but I will not decline
it yet in case something might prevent

my fulfilling my intention.
You are at perfect liberty to
make use of. this communication as
you may think proper. I should like
my young friends name to be mentioned
if possible so. that he might see I
have not forgotten him. more especially
as he is now in India superintending
the carrying out of a new line of rail
and reccollection of friends far away
becomes doubly pleasant when unexpected.
I hope to be present at one or
two of y.^r Club meetings when I
may perhaps have a few words to say
on silk producing insects. and silk
~~cl~~ culture. which may prove novel
to most. and entertaining to all. and
that which is very probable also I
hope to be able to show you a nice
series of sketches from my ramble
amongst old French towns.
I have a bad headache to
day from over work and therefore

I must ask you to ^ look over this and
correct any errors I may have made
and ^ to pardon the incorrectness of
style it displays.. and again thanking
you most sincerely for y.^r kindness
in inviting me I remain
My dear Sir
Yours very sincerely
Edw^d W Robinson

To Edw Wood Esq F.G.S. etc etc

PS. As I am quite uncertain
where I may be for the next week

> or so would you kindly forward y^r
> letter to M^r Stoddard. and they
> will know better where I am than
> others can.
>
> I have a most interesting specimen of
> a fractured tibia of the Dodo to show
> you as well as a number of other
> bones.

The letter was accompanied by a pencil and watercolour sketch of the Tradescant head, made by Robinson (see Post-Contemprary Illustrations).

Note: Clark was not schoolmaster "near port S.^t Louis" but at Mahébourg. Stating such, it is unlikely that Robinson knew Clark. Furthermore, Clark did not wait for confirmation of the identification of the bones from Owen before excavating (Anthony Cheke, pers. comm., 3rd December 2009).

Bolton Museum

Bolton Museum and Archive Service, Le Mans Crescent, Bolton, Lancashire BL1 1SE. Vertebrate Zoology Department

[Specimens donated from the Salford Museum and Art Gallery, Peel Park, The Crescent, Salford M5 4WU]

Raphus cucullatus

Eleven bones. Originally twelve bones, but one was found to be from a giant tortoise. Excavated in 1866. Donated by the Salford Museum to the Bolton Museum in 1991. Currently on display in the Africa Bay of the World Bays gallery (4th February 2008). Anon. (2008 [From diamonds to Dodos]) stated:

> While moving skeletal material betweens stores recently, staff decided to get a box of twelve dodo bones more accurately identified.
>
> Bolton Museum's David Craven sent images of the twelve to world-renowned dodo expert Dr Julian Hume at the Natural History Museum, London. Dr Hume identified all the bones, including rarer elements from the wing and shoulder (legs are by far the most commonly found bits of dodos). Of the twelve, one was not a dodo at all, it was actually from a species of giant tortoise!

BOLMG:1991.20.4 (identified by Julian Hume 16th November 2007, 28th November 2007). Media: R.2007-836.

The original label reads:

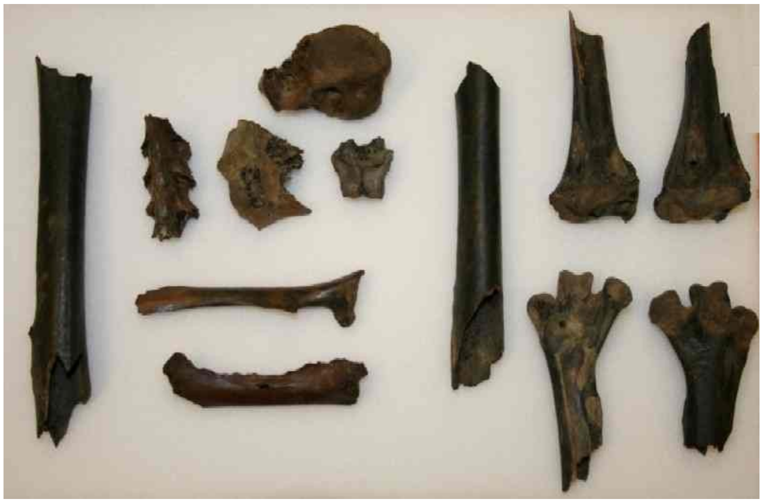
> The Dodo
> Leg bones etc, from river mud near Bourbon, Mauritius.
> Coll. Frank Plant 1866
> Pres John Plant
> Other bones etc mounted on card in exhibition case

Centrum of dorsal vertebra
Fragment of synsacrum
Left scapula, lacking distal extremity. Figured: Anon. (2008 [From diamonds to Dodos])
Fragment of proximal end of humerus
Proximal end of left tibiotarsus [could be distal end of tibiotarsus, pers. obs. from photograph]
Shaft of left tibiotarsus
Shaft of right tibiotarsus
Proximal end of right tarsometatarsus
Proximal end of right tarsometatarsus

Two distal ends of tarsometatarsi
The other bone is probably from *Cylindraspis* sp.

The original accession number when the specimens came into the possession of the Salford Museum was 1866-120. The Salford Museum accession register for 1866 was compiled retrospectively and the entry for the specimens merely states that they were "presented by Frank Plant, Madagascar" (Peter N. Ogilvie, pers. comm., 13th May 2009). John Plant (b. 1819) was curator of the Peel Park Museum, Salford and Fellow of the Geological Society.

At the meeting of the Archæological Section of the Historic Society of Lancashire and Cheshire, held on 2nd May 1867, the following objects were exhibited by Mr. Waterhouse, Honorary Secretary: "1. Several bones of the Dodo, recently brought from Mauritius. 2. Photograph copies of various bones of the same bird preserved in the Ashmolean museum, Oxford" (Anon. 1867d, p.235). "Mr. Waterhouse" was probably Nicholas Waterhouse, mentioned above. Whether these were the same bones as mentioned above is not known.



Bolton Museum dodo specimens (BOLMG:1991.20.4) (© Bolton Museum).

City Museum, Leeds

Leeds Museum Discovery Centre, Carlisle Road, Leeds LS10 1LB. Department of Natural Science

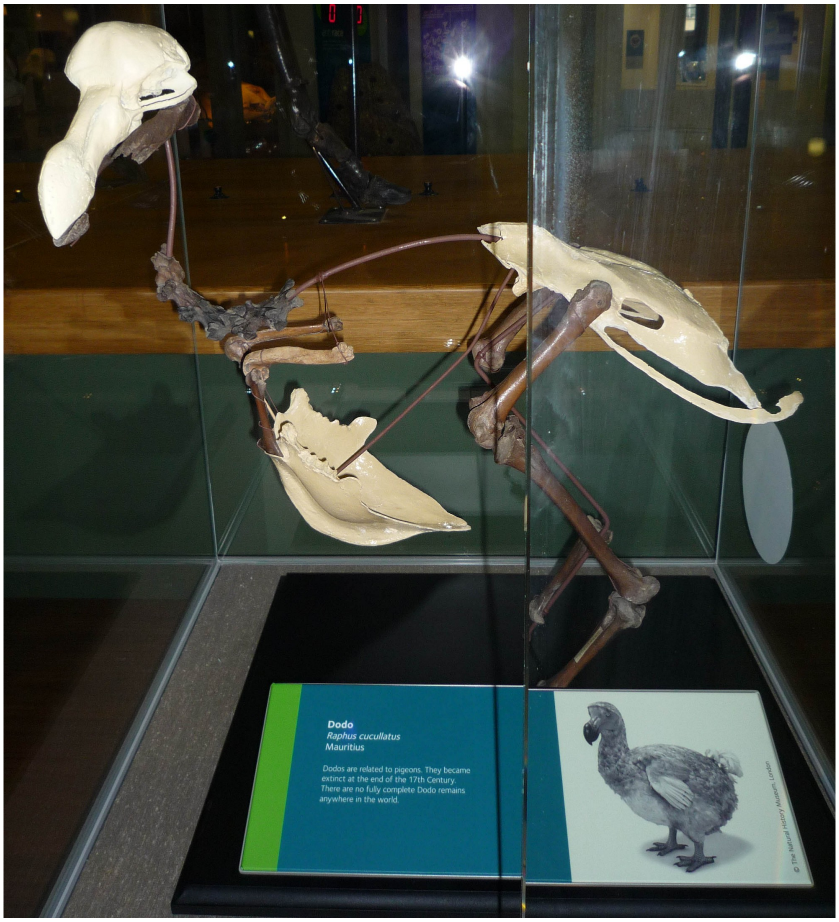
The Leeds Philosophical and Literary Society had its museum on Park Row. In 1921 the museum was transferred to the Corporation of Leeds. The following information derives partly from Clare Brown née Stringer (pers. comm., 18th March 2008; 25th October 2011).

Raphus cucullatus

LEEDM.C.1866.26 bones donated to Leeds by Harry Pasley Higginson, as he was local to the area. Anon. (1867b) noted: "In Zoology the principal accessions have been [...] several Bones of the Dodo, from Mr. Harry P. Higginson, of Thormanby" (pp.7-8). In the Donations and Additions, under 'Zoology', was mentioned "A Series of Bones of the Dodo, from the Mare Aux Songes, Mauritius [...] Harry P. Higginson" (*ibid*., p.15). The left and right humeri (LEEDM.C.1866.26.29068.18 and LEEDM.C.1866.26.29068.20) mounted in the skeleton currently on display, in the basement of the museum (April 2010, September 2012), are in fact from the great auk and are not dodo (pers. obs.). The mounted skeleton has the inventory number LEEDM.C.1865.10.29069 (http://www.leedsmuseumscollections.co.uk/code/emuseum.asp accessed 22 September 2011).

LEEDM.C.1866.26.29068 bones from several individuals
LEEDM.C.1866.26.29068.1 fibula fragment (83mm long)
LEEDM.C.1866.26.29068.2 rib fragment (83mm long)

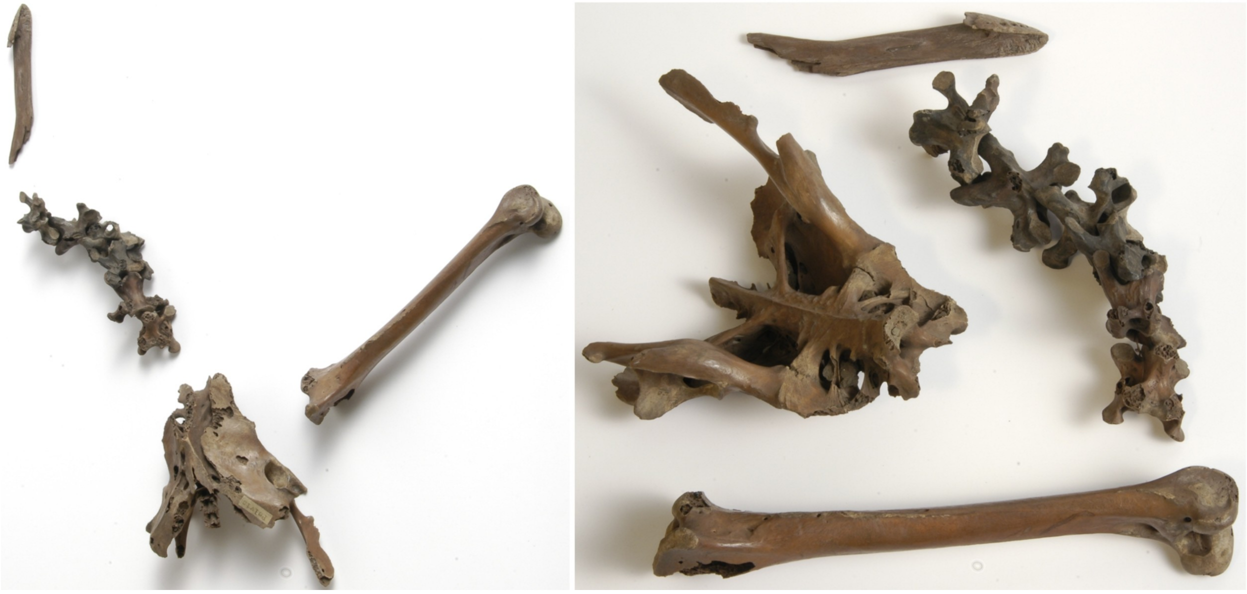
LEEDM.C.1866.26.29068.3 fibula fragment (84mm long)
LEEDM.C.1866.26.29068.4 fibula fragment (69mm long)
LEEDM.C.1866.26.29068.6 mandible fragment (103mm long)
LEEDM.C.1866.26.29068.7 mandible fragment (89mm long)
LEEDM.C.1866.26.29068.8 pelvis
LEEDM.C.1866.26.29068.11 rib fragment (83mm long)
LEEDM.C.1866.26.29068.12 left tarsometatarsus
LEEDM.C.1866.26.29068.13 left tibiotarsus
LEEDM.C.1866.26.29068.14 left femur
LEEDM.C.1866.26.29068.15 right tarsometatarsus
LEEDM.C.1866.26.29068.16 right femur
LEEDM.C.1866.26.29068.17 right coracoid
LEEDM.C.1866.26.29068.19 fragment of right coracoid
LEEDM.C.1866.26.29068.21 vertebra
LEEDM.C.1866.26.29068.22 vertebra
LEEDM.C.1866.26.29068.23 vertebra
LEEDM.C.1866.26.29068.24 vertebra
LEEDM.C.1866.26.29068.25 vertebra
LEEDM.C.1866.26.29068.26 vertebra
LEEDM.C.1866.26.29068.27 left mandibular ramus
LEEDM.C.1866.26.29068.28 right mandibular ramus
LEEDM.C.1866.26.29068.29 mandibular symphysis


Dodo
Raphus cucullatus
Mauritius
Dodos are related to pigeons. They became extinct at the end of the 17th Century. There are no fully complete Dodo remains anywhere in the world.
© The Natural History Museum, London

Leeds dodo skeleton (© Leeds Museums and Galleries).

Cast of the Tradescant head. The Donations and Additions to the museum of the Leeds Philosophical & Literary Society list: “Cast of the Head of the Dodo, from the original Specimen in the Museum of the Ashmolian [*sic*] Society, Oxford [...] Wm. West, Esq., F.R.S.” (Anon. 1848h, p.14). William West was a member of the Society.

Some of these bones were formerly accessioned under LEEDM.C.1865.10 (LEEDM.C.1865.10.29069: bones from several individuals). These were bones purchased in London in 1865.[64] Anon. (1866f) noted: “The Council have been fortunate enough to secure one of the sets of bones belonging to that remarkable extinct bird the Dodo, which had been sent to London from the Mauritius for sale” (p.8). In the “Donations and Additions to the Society’s Museum”, under “Geology and Mineralogy” is listed “A small series of Bones of the Dodo, from the Mauritius [...] Purchased by the Society” (*ibid*., p.13). The specimens bear an 1865 accession number, indicating that they arrived in that year. There do not appear to be any organized sales of dodo bones prior to the Stevens auctions, so this might have been a personal arrangement, perhaps with Charles John Boyle or Higginson bringing or sending bones to England for sale before the end of 1865 (Anthony Cheke, pers. comm., 24th December 2009). As these bones could not be distinguished from those under the 1865.26 accession number, it was decided to place all the dodo bones under the 1865.10 number and record the decision (Clare Brown, pers. comm., 8th November 2011).



Leeds dodo bones (© Leeds Museums and Galleries).

Some of the bones have been mounted into a skeleton, which is currently (April 2010) on display (see above) – the first time the bones have been displayed for a decade (Clare Stringer, pers. comm., 18th March 2008). These include a partial mandible (symphysis and right ramus, proximal end of left ramus), six cervical vertebrae (including cf. 4th, cf. 5th), right coracoid (mounted in the left coracoidal sulcus), coracoid, two humeri (see above), left and right femora, left tibiotarsus (mounted backwards), left and right tarsometatarsi, with the following cast elements: skull, sternum and pelvis. The cast elements appear to be the same as those made from Sauzier’s Mauritius Institute skeleton.

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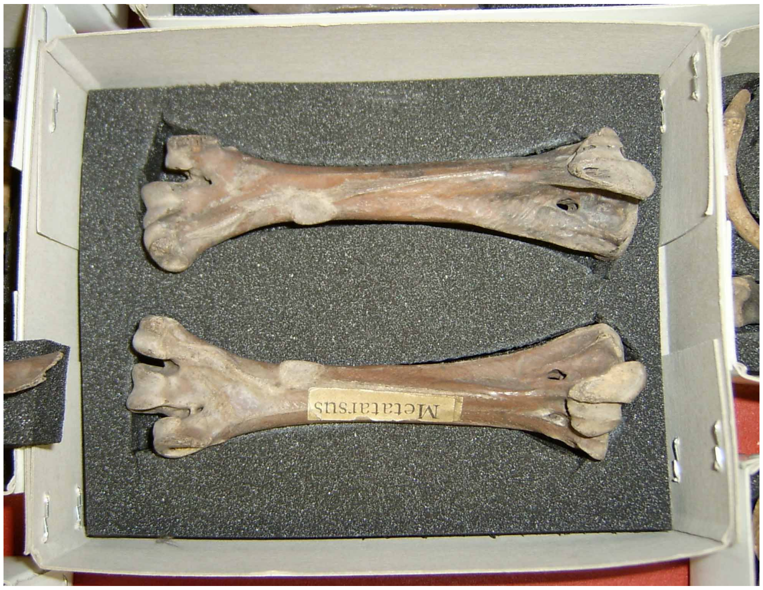
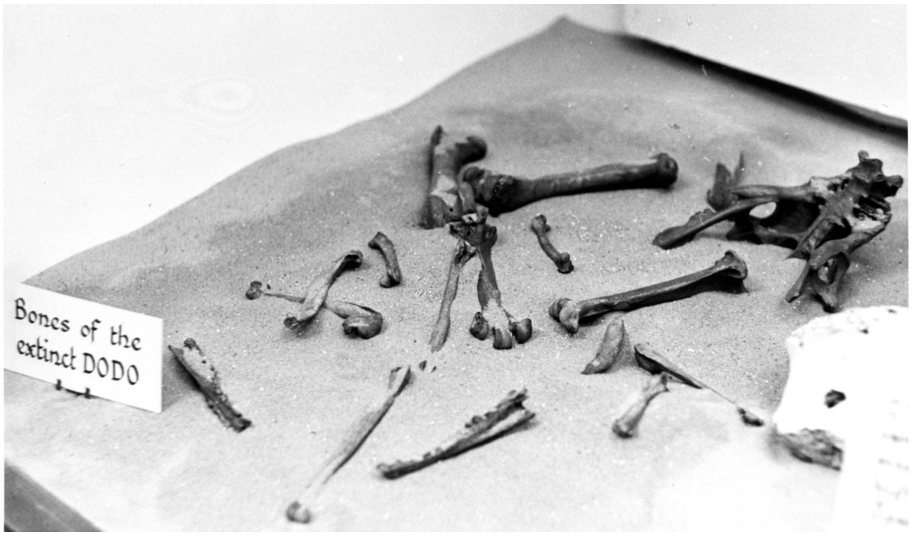
[64] Although Hume *et al*. (2009) stated that bones were received from Higginson in late 1865. This might be a mistake, the bones actually being those donated by Higginson in 1866.



Leeds dodo tarsometatarsi (LEEDM.C.1866.26.29068.12 and LEEDM.C.1866.26.29068.12) (© Leeds Museums and Galleries).

In 2007, when the display was being created for the City Museum, it was found that many of the bones labelled as being dodo were actually from the great auk.[65] There is also a photograph from *c*.1930, labelled "Bones from the extinct Dodo", showing dodo and great auk bones on display at the museum (Clare Brown, pers. comm., 21st September 2010). The present author has also identified three bones, kept with the dodo specimens, as solitaire (see below).



Leeds dodo and great auk bones on display *c*.1930. (© Leeds Museums and Galleries).

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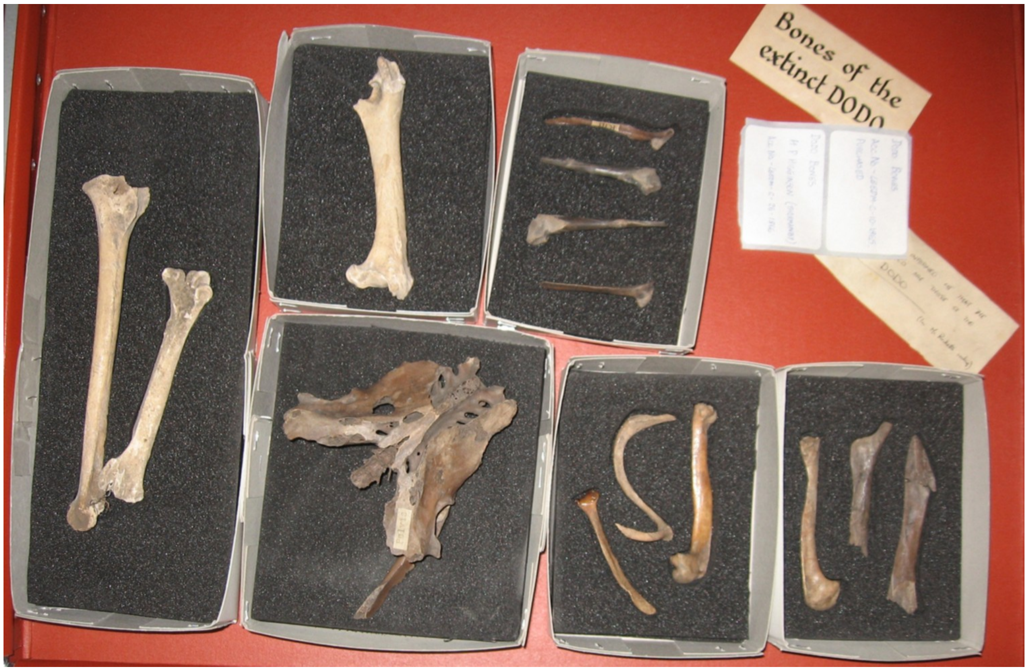
[65] An entry in the Leeds Museums & Galleries blog, Secret Lives of Objects, entitled "Just as dead as a Dodo" (12th May 2011) records the following: "In 2008, I was rummaging through a box of Dodo bones when I came across something I hadn't expected. I was looking for material to use in an articulated Dodo skeleton for the displays at Leeds City Museum.

The box was marked 'Dodo bones' but half its contents clearly wasn't Dodo – the bones were slimmer and of a different colour. I was very disappointed, it appeared that we didn't have quite as large a collection of Dodo material as we'd thought. What I'd come across however, was something just as special: an unknown cache of great auk bones" (http://secretlivesofobjects.blogspot.com/2011/05/just-as-dead-as-dodo.html accessed 22 September 2011).

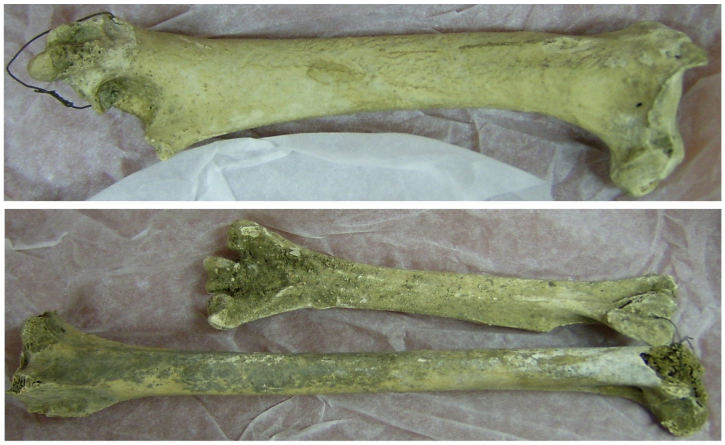
The museum also houses original correspondence relating to the bones (Hume *et al*. 2009).

Pezophaps solitaria
Catalogue numbers from Clare Brown (pers. comm., 8th November 2011).
LEEDM.C.1869.43.1 left femur (lacks medial condyle).
LEEDM.C.1869.43.2 left tarsometatarsus (damaged proximomedially)
LEEDM.C.1869.43.3 left tibiotarsus (damaged proximally and distolaterally)

These bones were formerly listed under LEEDM.C.1866.26. It was noted that the museum of the Leeds Philosophical & Literary Society had acquired "several Bones of the Solitaire of Rodriguez, presented by Professor Newton of Cambridge" (Anon. 1870a, p.10). The Donations and Additions to the Society's Museum listed: "Bones of the Solitaire from Rodriguez [...] Professor Newton, F.R.S., Cambridge" (*ibid*., p.29). These are currently kept with the dodo bones, under the same number (see above).



Leeds dodo and solitaire (left: LEEDM.C.1869.43.1, LEEDM.C.1869.43.2, LEEDM.C.1869.43.3) bones (© Leeds Museums and Galleries). Note: the broken furcula and two humeri (lower right) are not dodo.



Leeds solitaire bones: *top*: LEEDM.C.1869.43.1, *middle*: LEEDM.C.1869.43.3, *bottom*:

LEEDM.C.1869.43.2 (© Leeds Museums and Galleries).

Yorkshire Museum

Yorkshire Museum, Museum Gardens, York YO1 7FR

Raphus cucullatus

YORYM: 2004.21.1-22 mounted skeleton on display comprising: beak, mandible, eight cervical vertebrae, left and right scapulocoracoids, sternum (near complete), right humerus, pelvis (lacking caudal end), left and right femora, left and right tibiotarsi, left and right fibulae, left and right tarsometatarsi. These are currently mounted in a skeleton with the skull restored and casts of the caudal vertebrae and first metatarsal and pedal phalanges of the left pes. The skeleton is currently on display in the 'Extinct' gallery of the museum, which opened on 1st August 2011. The dodo bones were mounted to form the skeleton with the addition of a fabricated skull (http://www.ymtblog.org.uk/2010/07/21/the-animals-came-in-one-by-one/ accessed 22 September 2011).

The 23 bones (although only 22 are listed) were boxed together and labelled as "sternum, upper jaw, lower jaw, scapular and coracoid, femur, tibia and fibula, tarso-metatarsus and humerus". Two fossil bones in a case were acquired on Mauritius (Denton 1995, p.182). They were discovered and donated by Harry Pasley Higginson. The sternum is near complete and the scapula and coracoid form a scapulocoracoid. There are also some cervical vertebrae. Individual accession numbers from Stuart Ogilvy (pers. comm., 22nd May 2012):

YORYM : 2004.21.1 beak
YORYM : 2004.21.2 femur
YORYM : 2004.21.3 mandible
YORYM : 2004.21.4 scapula
YORYM : 2004.21.5 fibula
YORYM : 2004.21.6 vertebra
YORYM : 2004.21.7 vertebra
YORYM : 2004.21.8 vertebra
YORYM : 2004.21.9 humerus
YORYM : 2004.21.10 femur
YORYM : 2004.21.11 vertebra
YORYM : 2004.21.12 vertebra
YORYM : 2004.21.13 vertebra
YORYM : 2004.21.14 vertebra
YORYM : 2004.21.15 vertebra
YORYM : 2004.21.16 tarsometatarsus
YORYM : 2004.21.17 mandible
YORYM : 2004.21.18 mandible
YORYM : 2004.21.19 scapula
YORYM : 2004.21.20 coracoid
YORYM : 2004.21.21 tibiotarsus
YORYM : 2004.21.22 tarsometatarsus

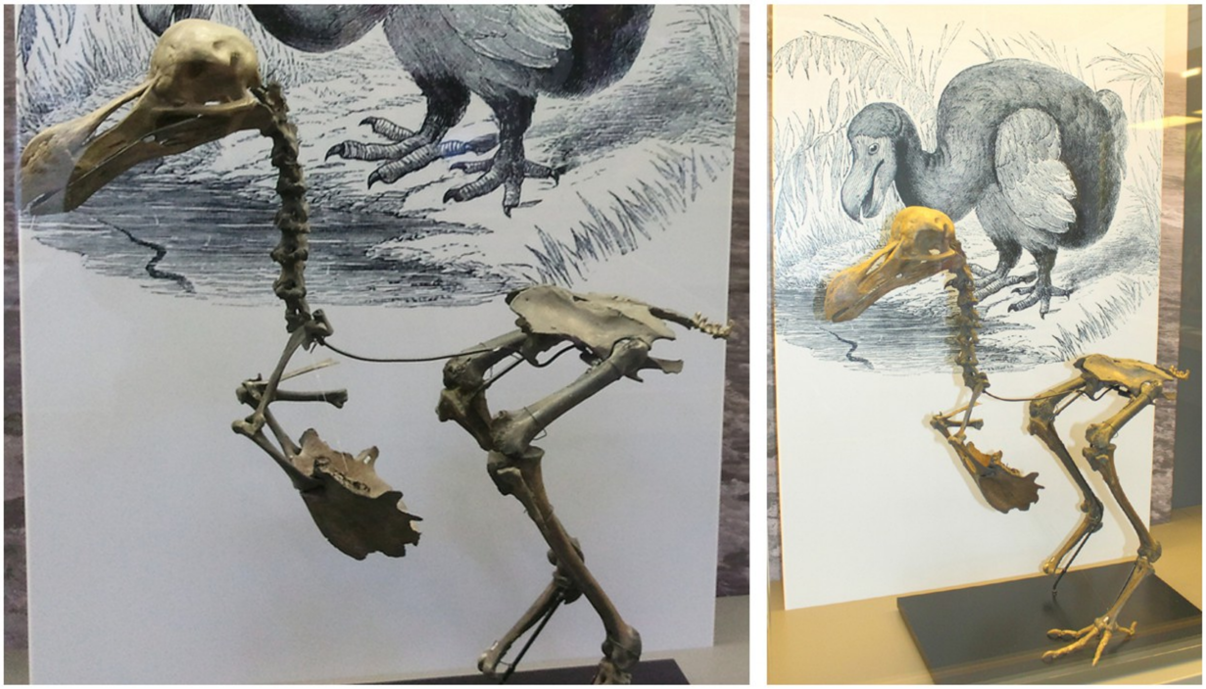
The Annual Report of the Yorkshire Philosophical Society for 1866 stated that:

> These bones, as stated in a letter from Mr. [Harry Pasley] Higginson, were found in a great bog called the Mare des Songes, in considerable quantities by himself and Mr. Clarke.
>
> Mr. Higginson's specimens were sent home by him to be divided between the Museums of Liverpool and York, and the portion which fell to our share included fragments of the upper and lower jaws, a sternum, a pelvis, several vertebrae and some bones of the limbs (p.9).

Thomas Allis donated a “Cast of the foot of the Dodo” to the museum of the Yorkshire Philosophical Society (Anon. 1839b, p.22). Allis was the Curator of Comparative Osteology at the museum. John Shute Duncan donated a “Cast in wax of the bones of the foot, and one in plaster of the head, of the Dodo, from the originals in the Ashmolean Museum” (Anon. 1848g, p.24).

In a letter from Edward Newton to Alfred Newton, dated 7th November 1865 (24/3, p.192) Edward noted that Higginson had sent dodo bones to York “by the last mail” (mid-October, according to Hume *et al*. 2009, p.37). Receipts of dodo bones donated by Higginson in Liverpool, Leeds and York are dated March and June 1866 (*ibid*.).

The York dodo bones were displayed an exhibition at the Yorkshire Museum entitled “Dust off the Dodo – Fabulous Finds That Time Forgot”, which opened on 3rd April 2004. Although Alastair McOran-Campbell stated that “George Clark [...] forgot to mention that Harry found the bones in the first place [...] there is almost certainly no question that he actually introduced George Clark to this particular find of bones” (Museum to tell the story of North man’s dodo find, *Northern Echo*, 28th February 2004: http://archive.thisisthenortheast.co.uk/2004/2/28/60323.html [accessed 23 January 2006]), there is no evidence to confirm this, and it is likely that Clark and Higginson found the bones independently (see Parish 2013, p.243).



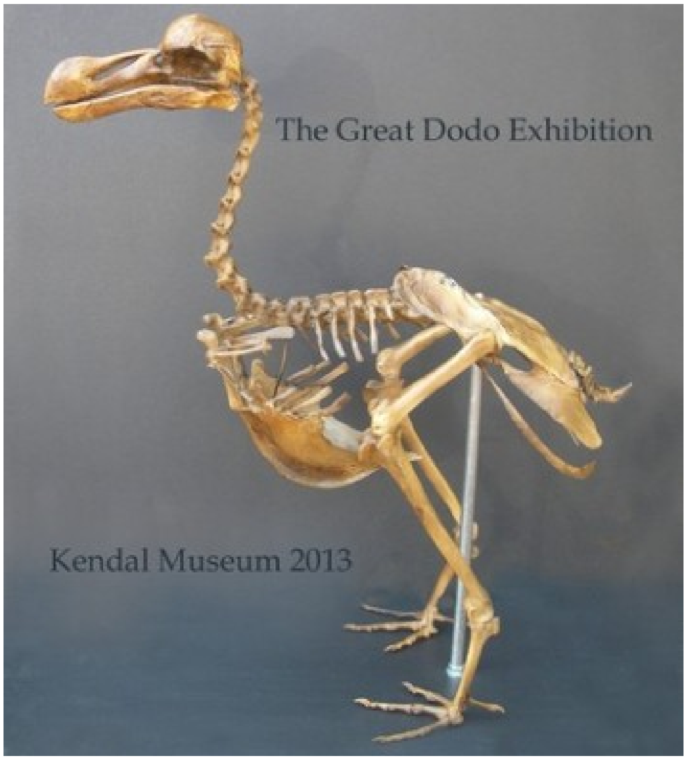
The Yorkshire Museum dodo skeleton (© Rupert Nye).

Kendal Museum

Kendal Museum, Station Road, Kendal, Cumbria LA9 6BT

Raphus cucullatus

“The Great Dodo Exhibition” at Kendal Museum, included dodo bones, a skeleton created by Luke Williams (see Staffordshire Skeletons, below) and composed of casts of bones from three individuals and a bone loaned by The Last Tuesday Society in London (Anon. 2013). It opened on 4th July 2013 and ran until the end of October. See also Reconstructions of the Dodo.



Dodo skeleton created by Luke Williams on display at Kendal Museum, 2013 (© Carl Chruch).

Great North Museum: Hancock

Natural History Society of Northumbria, The Hancock Museum, Barras Bridge, Newcastle upon Tyne NE2 4PT

The Hancock Museum and its collections are owned by the Natural History Society of Northumbria, although it is presently curated by Tyne & Wear Archives and Museums (June Holmes, pers. comm., 25th April 2008; 24th January 2013). Following information partly from Dan Gordon (pers. comm., 3rd April 2008).

Raphus cucullatus

NEWHM AX4801 nine bags of various dodo bones. These were collected on Mauritius and were apparently originally identified as dodo in the 1970s (Dan Gordon, pers. comm., 11th June 2010). They were donated by Henry Horrocks Slater of Riding Mill, Northumberland, and it is possible that they were collected on the Transit of Venus expedition, as Slater departed from there and went back there on his trip to Rodrigues.[66] Whilst on Mauritius, Slater stayed with Edward Newton (Slater 1879). Anon. (1877) lists: "A Collection of Bones of the Dodo, from the Mauritius. *Mr. H. H. Slater, Esq., Riding Mill*" (p.384). In the Report for July 1876, the Committee of the Natural History Society of Northumberland, Durham, and Newcastle-Upon-Tyne recorded that: "Mr. H. H. Slater, Riding Mill, has presented the leg bones and part of the pelvis of a Dodo" (*ibid*., p.378). He may have been staying with family or friends at Riding Mill when he donated the specimens (June Holmes, pers. comm., 4th November 2010). Letter from Henry Horrocks Slater to W. Dinning,[67] 9th January 1876 (Archives of the Natural History Society of

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[66] Slater landed in Mauritius on 4th August 1874 and departed for Rodrigues on 9th September. After visiting Rodrigues, he arrived on Mauritius on 19th December and left there on 9th January 1875 (Slater 1879).

[67] Probably William Dinning (d.1894), a palaeontologist, who lived at 95 Percy Street, Newcastle in 1876. He joined the Natural History Society of Northumberland, Durham and Newcastle upon Tyne in 1874 and was Honorary

Northumbria, NEWHM:1996.H67 Letter APP354): recto:

The Glebe
Riding Mill
9/1./76.

Dear Mr Dinning
I shall be in New
-castle tomorrow and
shall leave a small
box of Dodo bones at
the Museum for you:
You
will find therein
Pelvis (two pieces)
Sternum (four do)
Lower jaw (3 pieces)
2 humeri .
2 Femora .
2. Tibia
1. Fibula
2. Tarso-metatarsi .

Verso:

I am sorry I cannot give
you more , but you will
have at least as good
a series as any but
the best Museums of
England
Truly yours
Henry H Slater

On the back side of the letter (recto):

Dodo
remains
H H Slater
1876

The entry in the Natural History Society of Northumberland, Durham and Newcastle upon Tyne accessions book (NEWHM:2006.H2584 – Natural History Society Accession Book – ‘Presents etc. Ethnology Jan. 1887.’ 1887-1922) reads:

1876
Janry 14. / A series of bones of the Dodo consisting
of 2 Femurs 2 Tibia 2 Tarsi. Sacrum &c
from the Mauritius
H. H. Slater Esq

Curator of Zoology 1864-1878 and Honorary Curator of Geology 1870-1894.

Riding Mill

NEWHM AX5169 femur. Collected on Mauritius, and was donated to the museum between May 1872 and June 1874 by Mr W. Bowden. Anon. (1877) lists: "Femur of the Dodo, from the Mauritius. *Mr. W. Bowden*." (p.368; "Birds, Reptiles, etc").

NEWHM AX8857 brown-coloured cast of the Tradescant head. Presented to the Natural History Society of Northumbria by Philip Duncan in 1841. Anon. (1841a) lists: "Model of the Head of the Dodo (*Didus ineptus*), from the original in the Ashmolean Museum, Oxford.– *Philip Duncan, Esq., New College, Oxford*" (p.20). Charlton (1863) mentioned the Ashmolean Museum, "where a part of the bird is still preserved, and of this we can exhibit a cast, viz, of the head".

NEWHM AX8858 uncoloured cast of the BM foot. Donated by George Townshend Fox[68] of Durham in 1841. Anon. (1841) lists: "Model of the Foot of the Dodo, from the original in the British Museum.– *George Townsend* [*sic*] *Fox, Esq., Durham*." (p.20).

Letter from George Townshend Fox to William Hutton,[69] 1st July 1841 (NEWHM:1996.H278.98). Museum location: NHSN Archives, Great North Museum:Hancock Library – MS in ink. Recto:

Durham, July 1. 1841
Dear Sir,
I send a Box directed to you
at Phil. Soc., containing 2 Casts,
for the use of the Nat. His. Society,
which I request the favour of your
seeing disposed of in the museum.
The particulars on the other side.
The Box, I expect, will reach
Newcastle the Day after you
receive this, viz, on Saturday 3.d
I am, Dear Sir,
Yours very truly
Geo. T. Fox

Wm. Hutton Esq.

Verso:

Cast of the Head of the Dodo, ^ from the
original in the Ashmolean Museum
at Oxford, presented to the Nat.
His. Society of Newcastle by
Philip Duncan Esq.r of New
College, Oxford.

Cast of the supposed Foot of Dodo
from the original in the British
Museum, presented by
Geo. T. Fox of Durham.

NEWHM AX5169, AX8857 and AX8858 are currently on display. Figured: Morton (2005).

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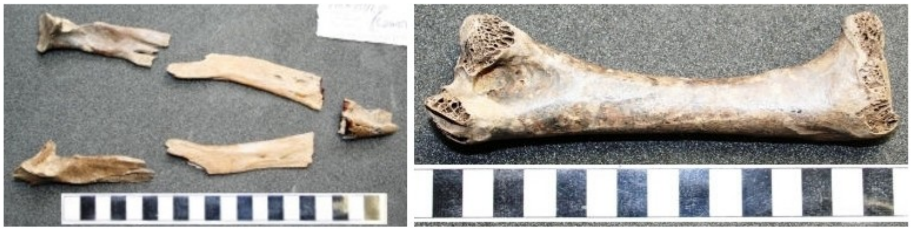
[68] George Townshend Fox (1782-1848). Of Durham. A founder member of the Natural History Society.

[69] William Hutton (1797-1860). Geologist. Honorary secretary of the Newcastle Natural History Society 1829-1846.

List (from photos sent by Dan Gordon, pers. comm., 6th October 2010):
proximal portion of left mandibular ramus
proximal portion of right mandibular ramus. This and the above specimen bear the recent label "Left Scapula Right Scapula" "Could be articular ends of mandible?" The fragment described as a "left scapula" has the catalogue number NEWHM:G154.32.
median portion of left mandibuar ramus. AX4801
median portion of right mandibular ramus
mandibular symphysis (damaged distally). With label: "Has been glued to ramus of each side [*i.e.* the median portions of ramus listed above]"
sternum fragment (bears 'G154.39' in black ink). AX4801
sternum fragment (bears 'G154.39^{b}' in black ink). AX4801
sternum fragment (bears 'G154.39c' in black ink). AX4801
sternum fragment. AX4801
cf. sternum fragment. AX4801
left humerus (lacking proximal end) AX4801
right humerus (lacking proximal end) AX4801
fragment labelled as "Proximal humerus" (bears 'G154.38' in black ink) (probably not humerus or dodo)
acetabular and ilioischiadic portion of left side of pelvis
left femur with label in faded ink: "Thigh-bone (Femur) of the "Dodo" from the Mauritius. Prest^{d}. by Mr. W. Bowden". AX5169 (G154.23). Presented by W. Bowden 1872-74.
right femur. AX4801
right tibiotarsus (damaged proximally and distally). AX4801. (bears 'G154.26' in black ink)
left fibula (lacking proximal and distal ends) (bears 'G154.38' in black ink)
left tarsometatarsus. AX4801
right tarsometatarsus. AX4801



Hancock Museum dodo bones (AX4801): *left*: mandible, *right*: right femur (© Hancock Mueum).

According to Dan Gordon (2010), some of the bones show traces of "old glue, where someone has tried to reconstruct the skeleton in the past". Comparing the specimens as they are now and as listed in Slater's letter (9th January 1876), it is apparent that one portion of pelvis and one tibiotarsus are currently missing.

Following the redevelopment of the museum between 2006 and 2009, NEWHM AX5169, AX8857 and AX8858 are no longer on display and are currently stored, along with the other dodo material, in the Great North Museum Resource Centre (Dan Gordon, pers. comm., 17th January 2013).

Museum, Fort Pitt, Kent

Fort Pitt, Chatham, Kent
See Netley Museum (below)

Hastings Museum and Art Gallery

Hastings Museum and Art Gallery, Johns Place, Bohemia Road, Hastings, TN34 1ET

Raphus cucullatus

Thirteen dodo bones were transferred from the Hastings Museum to the British Museum (Natural History) in 1962. These had formerly belonged to Edith Elizabeth Clark, who left them to the Brassey Institute.[70] Pamphlets and letters were also donated to the British Museum (Natural History) by the Hastings Museum in 1963. Transcribed below are documents relating to the specimens, in the Hastings Museum archives (transcribed from scans sent by Cathy Walling).

List of pamphlets and letters donated to the British Museum (Natural History) in 1963:

> Mauritius Register. Palmer & Bradshaw, 1859. (1st paper, A Ramble round Mauritius with some excusrions [*sic*] in the interior of that island etc., has inserted slip "By George Clark, Esq".)
>
> Offprint from "The Ibis", April 1866, "Account of the late discovery of Dodo's remains in the island of Mauritius". George Clark.
>
> 6 offprints presented to George Clark by the authors:
> i. Edward Newton on "The Land birds of the Seychelles Archipelago".
> ii. M. Ch.Coquerel on "Discours au Societe d'acclimatation".
> iii. A.Milne-Edwards on "Zoological Affinities of Aphanapterryx Imperialis". [*sic*]
> iv. Alfred and Edward Newton on "The Osteology of the Solitaire or Didine Bird.
> v. Alfred Newton on "A picture supposed to represent the Didine Bird of the Island of Bourbon".
> vi. M. Ch. Coquerel. "Des Animaux Perdus, Qui Habitaient Les Iles Mascareignes," 1863.
>
> 3 reprints not so inscribed:
> i. H.Schlegel "The Ibis", 1866.
> ii. Alfred Newton "P.Z.S," 1865.
> iii. H.Coquerel, 1865.
>
> 2 papers bound together;
> Professor Owen on "The Osteology of the Dodo". Trans. Zool. Soc., 1866.
> Professor Owen on "Evidence of species perhaps extinct, of large parrot contemporary with the Dodo, in the Island of Mauritius". The Ibis, April, 1866.
>
> Original holograph letter by Professor Richard Owen to George Clark, from British Museum 1866, commenting on his inspection of the bones, the arrangement for purchase for the museum for £100, and the difficulties involved, and paying a warm tribute to him as discoverer. In a postcript he proposes to recommend the Council of the Zoological Society to elect him a Corresponding Member.
>
> Typed letter, 16th November, 1923, from Gaby & Hardwicke, solicitors, Hastings, to Mr. Ruskin Butterfield, Curator of the

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[70] The Brassey Institute was situated at 13 Claremont, Hastings and was built in 1878-1881. The School of Art and Science was on the top floor. The Institute was the home of Hastings Museum from 1892 to 1925.

Hastings Museum,[71] notifying him that the late Miss E. E. Clark had left her collection of Dodo bones to the Brassey Institute, and mentioning the pamphlet and letter by Professor Owen. On the back, in Butterfield's writing is a list of the specimens obtained.

Report of the Council of the Zoological Society, 1875. (I cannot see the relevance of this).

Pencil drawing, unsigned of Dodo's head and foot with handwritten note in ink that it is drawn from specimens in the Natural History Museum, Paris.

4 loose sheets lithographed bones of the Dodo, details unknown.

Letter from John Manwaring Baines to the Keeper, Department of Zoology, British Museum (Natural History), 27th November 1962:

27th November, 1962.

Dear Sir,

I have been going through our reserve collections, and find that we have a number of Bones of the Moa, pesented by Thomas Parkin, and of the Dodo, bequeathed by Miss E. E. Clark. The latter were collected in a boggy ravine, known as La Mare our Songes, in the Island of Mauritius, by the late Mr. George Clark, master of the Government School in the Island.

I understand that you have his first collection which were described by Sir Richard Owen.

These of course are right outside our interests, and I feel that if you would like to have them, you should. They are wrapped up, and occupy the space of a tea chest.

Perhaps you will let me know in due course whether you would like them. If not, would one of the University Departments?

I enclose contemporary correspondence relating to the Moa bones. Needless to say the gold specimens mentioned at the start of the long letter did not come

Yours faithfully ,

J. MANWARING BAINES.
Curator.

The Keeper,
Dept. of Zoology,
British Museum (Natural History),
LONDON, S.W.7.

Letter from Errol I. White to John Manwaring Baines, 29th November 1962:

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[71] William C. J. Ruskin Butterfield (fl 1896-1910). Curator of the Hastings Museum.

BRITISH MUSEUM (NATURAL HISTORY)
DEPARTMENT OF PALAEONTOLOGY
Cromwell Road, LONDON S.W.7
Telegrams: Nathismus, Southkens, London S.W.7
Telephone: KEN*sington* 6323

29th November, 1962

Dear Sir,

Thank you for your letter of the 27th November 1962 regarding the Moa and Dodo bones.

We should be very pleased indeed to accept your kind offer of these specimens which will certainly make a valuable addition to our collection of such remains, and I am pleased to have the correspondence which is most interesting.

With regard to transport, would it be possible to pack them safely as these bones are generally very fragile, and send them by carrier or train at our expense, or would you like one of our staff to come and do this for you?

Have you any knowledge of the Worthingtons, father and son, who wrote the letters, and their relationship to Thomas Parkin?

Yours truly,
[signed]
ERROL I. WHITE
Keeper of Palaeontology.

J. Manwaring Baines, Esq., B.Sc., F.S.A .,
F.R.S.A., F.Z.S., F.M.A.,
Curator, Public Museum and Art Gallery,
John's Place,
HASTINGS.

Letter from John Manwaring Baines to Errol I. White, 7th December 1962:

7th December, 1962.

Dear Mr. White,

I am glad to hear that our Moa and Dodo bones are to be found a good home. They have been packed up since 1928 and as they seem very snug, I rather hesitate to undo and repaek them. In volume they are not a great deal, and as I have to come up to London next week I will bring them myself. This will be on Friday 14th.

I have no further knowledge of the Worthingtons, but will look among Thomas Parkin's books and albums to see if I can trace them.

I believe we met many years ago when I was on the staff of the Leeds City Museum, and Moy Thomas of the Department of Zoology was working on our Coelocanth [*sic*] remains. He was a great loss.

Yours sincerely,

J. MANWARING BAINES.
Curator.

E. I. White, Esq.,
Keeper of Palaeontology,
British Museum, (Natural History),
Cromwell Road,
LONDON, S.W.7.

Letter from John Manwaring Baines to Errol I. White, 14th August 1963:

14th August, 1963.

Dear Dr. White,

Last December I called with some Moa and Dodo bones which you accepted for the collections, and I said then that I had no more information about them. A little more has now emerged. This Museum used to be Joined with the Library of the Braseey Institute, and when the two were split up much museum material and documentation remained with the Library.

After denying the existence of anything to do with the Dodo the Library has now produced a small packet of papers. These are mostly pamphlets, but there is an interesting copy of the Mauritius register, with papers on the Fauna, and a very nice letterfrom Professor Owen to George Clark, the discoverer.

Would you care to have these as well? I do not suppose the offprints will interest you, but you may be able to pass them on to some library or department that would care to have them.

Yours sincerely,
[signed]
J. MANWARING BAINES.
Curator.

E. I. White, Esq.,
Keeper of Palaeontology,
British Museum (Natural History),
Cromwell Road,
LONDON, S.W.7.

Letter from Errol I. White to John Manwaring Baines, 17th October 1963:

BRITISH MUSEUM (NATURAL HISTORY)
DEPARTMENT OF PALAEONTOLOGY
Cromwell Road, LONDON S.W.7

Telegrams: Nathismus, Southkens, London
S.W.7
Telephone: KEN*sington* 6323

17th October, 1963

Dear Mr Manwaring Baines,

I have now had a chance to look through the pamphlets and letters which you so kindly forwarded with the specimens presented to the Museum, and I have found them of the very greatest interest.

Thank you again for this most generous gift.

Yours sincerely,
[signed]
ERROL I. WHITE,
Keeper of Palaeontology.

J. Manwaring Baines, Esq., B.Sc., F.S.A., F.M.A.,
Public Museum and Art Gallery,
John's Place,
HASTINGS.

Details of the bones donated to Hastings Museum by Edith Elizabeth Clark:

Bones of the Dodo (Didus ineptus L.) collected in a boggy ravine known as La Mare aux Songes in the Island of Mauritius by George Clark, Master of the Government School in the Island, and later bequeathed to the Hastings Museum by his daughter, Miss E.E.Clark.

1 Sternum
2 Pelvis
3 ..
4 Femur, left
5 .. right
6 Tibia, left
7 ..
8 ..
9 ..
10 right
11 Metatarsus
12 ..
13 ..

Presented to the British Museum (Natural History) 14 Dec 1962.

Notes on the dodo:

THE DODO.

_______Ø_______

The bones of the Dodo, here exhibited, were collected in a boggy ravine, known as La Mare aux Songes, in the Island of Mauritius, by the late Mr. George Clark, master of the Government

> School in the island, and were bequeathed to the Hastings Museum by his daughter. the late Miss E. E. Clark.
>
> The Dodo (so-called from the Portuguese Doudo, a simpleton) was a large, flightless bird which formerly inhabited Mauritius, and which was first described in an account of a Dutch expedition to the island under Van Neck at the end of the I6th century. The birds were called by the Dutch Walghvogels (i.e. nauseous birds), and were said to be as big as swans, with large heads, no wings, and a tail consisting of a few curly feathers. Living specimens were afterwards sent to Europe, and about I638 Sir Hamon Lestrange saw one in a raree-show in London. At the time of Mr. Clark's discovery of Dodo-remains in I865 only a very few remains were, however, known. Mr. Clark's first collection was sent to Sir Richard Owen at the British Museum, and the specimens are fully described and figured in a paper, entitled, "On the Osteology of the Dodo (Didus ineptus, Linn.)," a copy of which is in the Hastings Museum, and can be seen upon application.

See also The Natural History Museum, London (above)

Booth Museum of Natural History, Brighton

Booth Museum of Natural History, 194 Dyke Road, Brighton, East Sussex, BN1 5AA

Raphus cucullatus

The museum houses several bones of the dodo (nos. 101758-101778) collected by Frederick William Lucas (1842-1932) of Brighton, a collector of skeletons, who presented them to Brighton Museum in November 1925. The dodo collections of Henry Willett (1823-1903, founder of Brighton Museum) and Frederick William Lucas were moved to the Booth Museum, from the Brighton Museum, in 1975. The skeleton and several bones are on display.

No. 101743 (Reg. 1872 / 80) partial composite skeleton (storage- B/11/Cab 119); cast of the Tradescant foot skeleton; brown-coloured cast of the BM foot. The skeleton comprises a mandibular symphysis and left ramus, five cervical vertebrae, pelvis (damaged), femora, tibiotarsi, fibulae, tarsometatarsi, sternum and, on the left side, a humerus, coracoid and scapula. This skeleton was collected in 1883 by Henry Willett and presented to Brighton Museum in that year (or in 1887). He also presented the above-mentioned casts of the Oxford head and foot skeleton and BM foot to Brighton Museum in 1884. The cast of the foot bears ‘101743’ in black ink and ‘R1872/80’ in red ink. The skeleton was on display in 1893[72] and was also mentioned in *The Register, Adelaide*, (20th December 1904: “The skeleton of a dodo has been given a place of honour in Brighton Museum” (p.8).

No. 101744 uncoloured cast of the Tradescant head. Collector: Mr. F. W. Lucas.

No. 101758 sternum, damaged and missing caudally (R.2778/1620), “Spec. A”

No. 101759 pelvis, damaged at cranial end and missing caudally (R.2778/1621), “Spec. C”

No. 101760 damaged synsacrum with portions of the ilia attached; damaged and missing caudally (R. 2778/1622), “Spec. D”

No. 101761 portion of pelvis, left side, consisting of caudal half of acetabulum and the area around the ilioischiadic foramen (R.2778/1622), “Spec. D”

No. 101762 right femur (left femur: Angst *et al*. 2011)

No. 101763 box containing left scapula (broken into two halves- proximal and distal) (R. 2778/1624) and indet. Bone fragments (thin and flat, from sternum? or pelvis?)

No. 101764 caudal portion of left mandibular ramus (R.2778/1625), “Spec. G”

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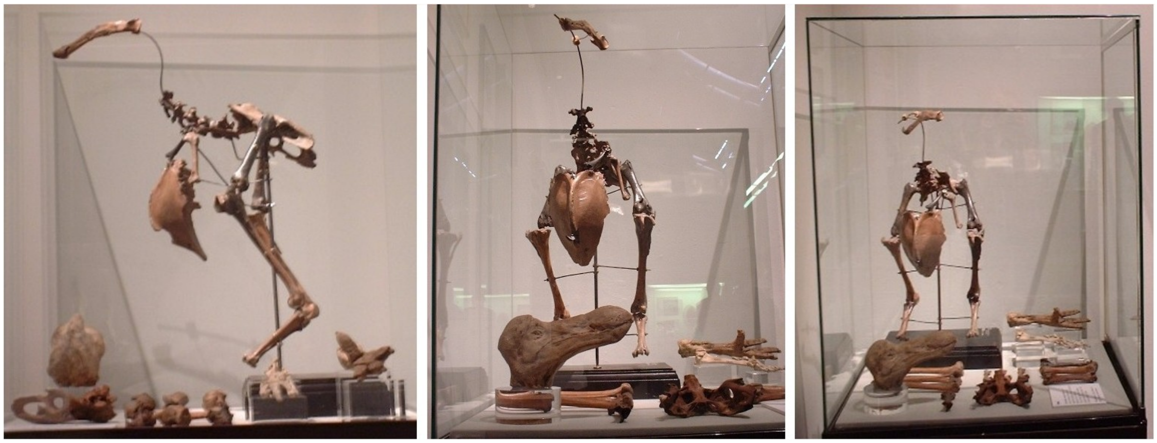
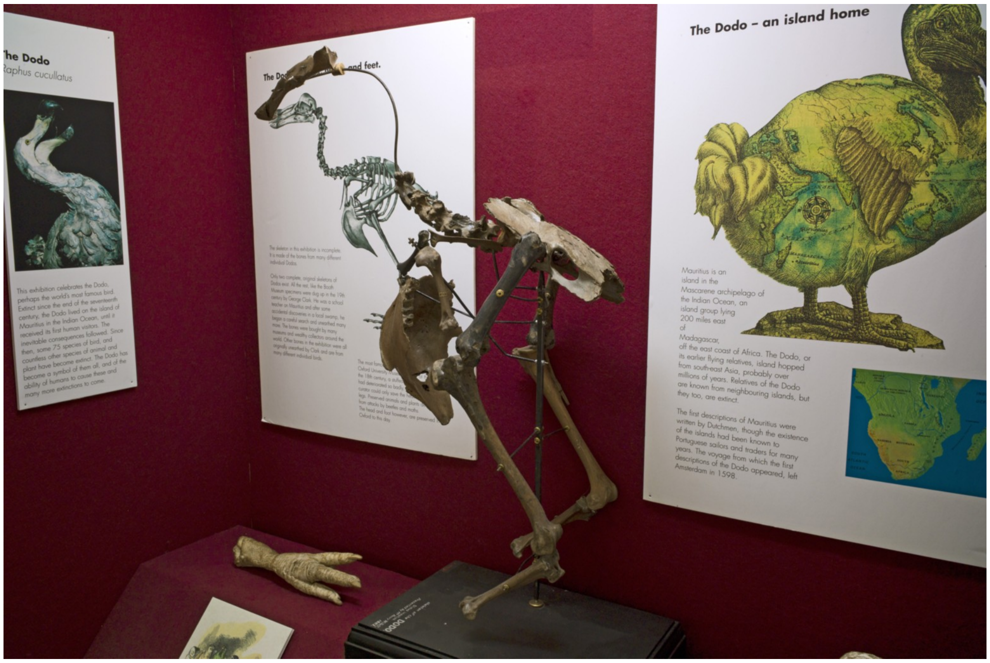
[72] The Official Guide to the London, Brighton & South Coast Railway, and the Newhaven Route to Rouen, Paris, and the Continent, *Cassell & Company, Limited*, 1893.

No. 101765 middle cervical vertebra (R.2778/1626), “Spec. H”
No. 101766 lower cervical vertebra
No. 101767 mandibular symphysis and distal half of right ramus, “Spec. I”
No. 101768 mandibular symphysis and distal half of right ramus (R.2778/1627), “Spec. I”
No. 101769 mandibular symphysis and distal half of left ramus (R.2778/1628), “Spec. J”
No. 101770 portion of mandible (middle section), “Spec. K”
No. 101771 portion of mandible (middle section) (R.2778/1629), “Spec. K”
No. 101772 right tibiotarsus (R.2778/1630), “Spec. L”
No. 101773 right tibiotarsus (R.2778/1630), “Spec. L”
No. 101774 left tibiotarsus
No. 101775 left tarsometatarsus (R.2778/1631), “Spec. M”
No. 101776 right tibiotarsus (R. 2778/1631), “Spec. M”
No. 101777 right tarsometatarsus, missing the proximal extremity (R.2778/1631), “Spec. M”
No. 101778 right humerus, missing proximal end (R.2778/1632), “Spec. N”



Dodo skeleton (no. 101743) and other specimens on display (© Jolyon C. Parish, 3rd November 2001).



No. 101743 on display (© Charlie Meecham, September 2012).

Cast of the Tradescant head and bones on display (© Jolyon C. Parish, 3rd November 2001).

Anon. (1904) reported that "The skeleton of a dodo has been given a place of honour in Brighton Museum" (p.8).

The Booth Museum acquired a replica dodo skeleton in January 2014. The skeleton had been placed in an auction at Summers Place Auctions on 27th November 2014 (lot 79: see below), but had not been sold. Staff at the Booth Museum offered to house it and it was placed on display until staff were able to make a display cabinet for it (Anon. 2014a: "Dodo joins Booth Museums' marvellous menagerie").

Curtis Museum, Hampshire

Curtis Museum, High Street, Alton, Hampshire GU34 1BA

Data from http://www.hants.gov.uk/museum/biology/vertebrates/curious.html [accessed 10 November 2004], http://www3.hants.gov.uk/item?itemid=54 [accessed 2 February 2012] and Christine Taylor (pers. comm., 1st February 2008).

Raphus cucullatus

HMCMS:ACM1867.2 & 3 plaster casts of the Tradescant head (uncoloured) and BM foot (coloured brown), *c*.1867. Information from the accession register. The cast of the head was acquired via William Curtis[73] (Christine Taylor, pers. comm., 14th February 2008).

HMCMS:ACM1867.4 right scapula, right coracoid, sternum, left humerus, pelvis, two left and two right femora, two left and two right tibiotarsi (one right tibiotarsus broken in two), fibula, four left and two right tarsometatarsi. The various bones were described as "including three wing bones, sternum, ilium & ischium, six fused tarsi & metatarsi, four fibulae, four femora, one scapula". Found by George Clark at Mare aux Songes, 1865 and given by him to his friend William Curtis (1803-1881; founder of the Curtis Museum in 1865) in 1867. Figured: http://www3.hants.gov.uk/heritage100loadimage.jpg?id=4055 [accessed 2 February 2012]

In the Acquisition Book, under "August 1867", is written: "Cast of the head of the Dodo from the specimen in the Ashmolean Museum, Oxford; Cast of the foot of the Dodo in British Museum; Bones of the Dodo from Mauritius discovered in a peat swamp by Mr. Geo. Clark in 1865, *viz*. Lower Mandible, sternum or breast bone, bones of rudimentary wing, etc., pelvis and leg bones" (quoted in Curtis 1955, p.9). George Clark sent William Curtis a copy of his paper from *The Ibis* (Clark 1866), with the dedication "from his friend G.C.". This is kept in the museum (*ibid*.). It was also noted that sometime around spring 1930 "Sir Henry [Alexander] Miers [1858-1942] visited the Museum and not many days later we received a letter from the British Museum (Nat. Hist.) asking if the bones of the Dodo in our collection were authentic. We were glad to be able to reply that they came from the same source as their own, *viz*., through Mr. George Clark. The question, of course, was instigated by Sir Henry" (*ibid*., p.19). Henry Miers was President of the Museums Association (1928-1933) and trustee of the British Museum (1926-1939) at the time.

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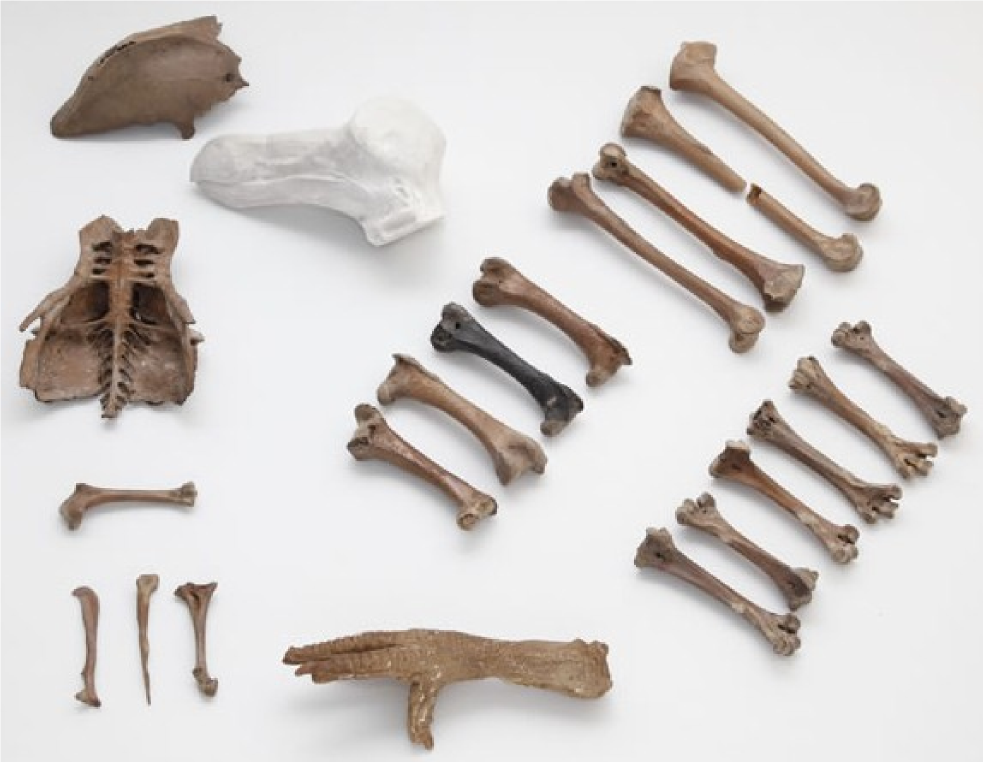
[73] In the NHM Archives there is a file, "Hampshire: Curtis Museum, Alton": William Hugh Curtis (regarding George Clark and dodo bones); M. Williams. Date: 1936-1949 (NHM Archives, DF230/121 SubSeries UK Institutions' Correspondence 1921-1997. Ref No: DF ZOO/230/121/36).



The Curtis Museum specimens (© Thi Bui and James Phelps).

Netley Museum, Hampshire

Raphus cucullatus

It was reported that at the meeting of the ZSL on 4th May 1880 "Mr. Dobson exhibited and made remarks on some bones of the Dodo which had been transmitted from Mauritius in 1847-50 by Dr. F. Reid to Sir James Macgregor, and having been deposited at Fort Pitt, Chatham, were afterwards removed to Netley Museum" (Anon. 1880, p.71). "Mr. Dobson" was George Edward Dobson (1848-1895), zoologist and army surgeon. He became curator of the Royal Victoria Museum at Netley sometime around 1878. "F. Reid" was Francis Reid, Chief Medical Officer of of Mauritius, although he would have been Surgeon or Assistant Surgeon during the period 1847-50. James McGrigor (Macgregor) (1771-1858) was director of the Museum of Morbid Anatomy at Fort Pitt. He donated Mauritian plants collected around 1820 to the BM.[74] This notice was not mentioned in the *Proceedings of the Zoological Society* for 1880, but is found in reports of the 4th May meeting given in other periodicals, such as *Nature*, *The Zoologist* and *Zoologischer Anzeiger*.

This information was subsequently supplemented at the meeting of the ZSL on 1st June 1880: "Mr. [G. E.] Dobson made some further remarks as to the date of the receipt of the Dodo bones exhibited by him at a former meeting" (Anon. 1880, p.162).

However, there are neither dodo bones at the Southampton City Museum (Alastair Arnott *ex* Christine Taylor pers. comm., 28th September 2010), nor the Boldrewood Museum, Southampton (Christine Taylor pers. comm., 28th September 2010). However, see below.

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[74] The Museum of Morbid Anatomy was founded by James McGrigor (Director General of the Army Medical Department 1815-1851). The Army Medical School was founded in 1860 and the museum collection was moved there. As further specimens were obtained it became the Pathology Museum. In 1863 the Royal Victoria Hospital was opened in Netley and the Army Medical School moved there with the Pathology Museum. During the Second World War the museum was dismantled and much was destroyed. (Wellcome Library, Archives and Manuscripts catalogues, RAMC: http://archives.wellcome.ac.uk accessed 23 September 2010).

Hartley Institution, Southampton

Raphus cucullatus

Patterson (1962) mentioned that among the early gifts to the museum of the Hartley Institution “what was described in the press as “a set of bones of the dodo”, though it is hardly likely that it was labelled and exhibited as such” (p.28). The Hartley Institution, established in 1862, was the forerunner of the University of Southampton.

Royal Cornwall Museum

Royal Cornwall Museum, River Street, Truro, Cornwall, TR1 2SJ

Raphus cucullatus

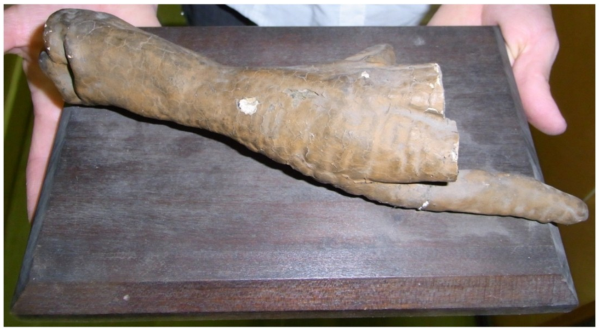
Charles Lemon (1784-1868) presented a cast of the BM dodo foot to the Royal Institution of Cornwall (paper read 5th November 1847: Lemon 1848). The accessions register of the Royal Cornwall Museum states that a plaster cast of the foot was given to the Royal Institution of Cornwall by Charles Lemon in about 1846. However, the specimen is currently unlocated, presumed lost (Sara Chambers, pers. comm., 17th September 2010).

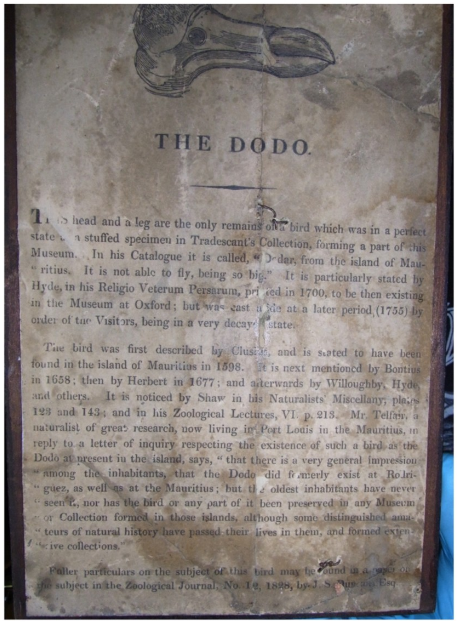
Bristol Museum & Art Gallery

Bristol City Museum & Art Gallery, Queen’s Road, Bristol BS8 1RL. Zoology Collection.

Raphus cucullatus

A5232.1 brown-coloured plaster model of the BM foot (Trebilcock 2007; Rhian Rowson, pers. comm., 5th November 2010; 14th March 2012). On the underside of the wooden base is pasted an information sheet on the dodo. This probably dates from the late 1820s or early 1830s, as it mentions Duncan (1828). At the top of the sheet is an engraving of the Tradescant head, or a reproduction of it, suggesting that a model of this specimen was also available. Digits II and III of the foot model are broken. In case 21 in the Lower Room were “models of the head and foot” of the dodo, along with specimens of other columbids and members of the Gallinæ (Wilson 1891, p.7; Wilson 1893, p.6).





THE DODO.

This head and a leg are the only remains of a bird which was in a perfect state as a stuffed specimen in Tradescant's Collection, forming a part of this Museum. In his Catalogue it is called, “Dodar, from the island of Mauritius. It is not able to fly, being so big.” It is particularly stated by Hyde, in his Religio Veterum Persarum, printed in 1700, to be then existing in the Museum at Oxford; but was cast aside at a later period, (1755) by order of the Visitors, being in a very decayed state.

The bird was first described by Clusius, and is stated to have been found in the island of Mauritius in 1598. It is next mentioned by Bontius in 1658; then by Herbert in 1677; and afterwards by Willoughby, Hyde, and others. It is noticed by Shaw in his Naturalists' Miscellany, plates 123 and 143; and in his Zoological Lectures, VI. p. 213. Mr. Telfair, a naturalist of great research, now living in Port Louis in the Mauritius, in reply to a letter of inquiry respecting the existence of such a bird as the Dodo at present in the island, says, “that there is a very general impression “among the inhabitants, that the Dodo did formerly exist at Rodri- “guez, as well as at the Mauritius; but the oldest inhabitants have never “seen it, nor has the bird or any part of it been preserved in any Museum “or Collection formed in those islands, although some distinguished ama- “teurs of natural history have passed their lives in them, and formed exten- “sive collections.”

Fuller particulars on the subject of this bird may be found in a paper on the subject in the Zoological Journal, No. 12, 1828, by J. S. Duncan, Esq.

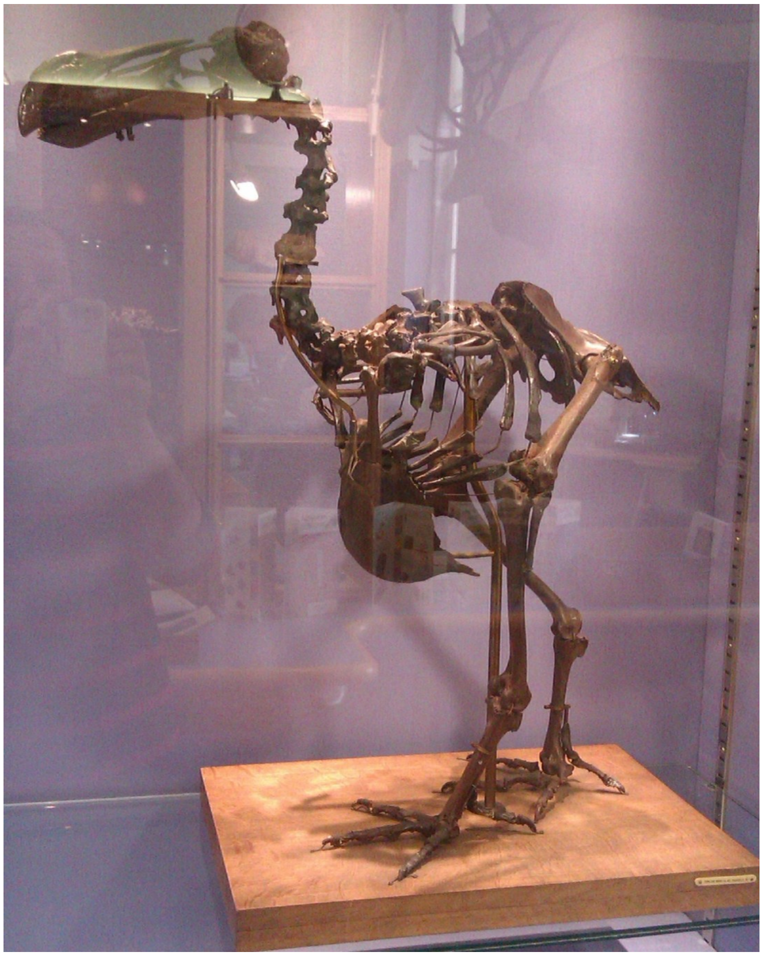
Bristol model dodo foot (A5232.1) (© Bristol Museum & Art Gallery).

National Museum of Wales (NMW)

National Museum and Gallery Cardiff, Cathays Park, Cardiff, CF10 3NP. Vertebrates, Biodiversity & Systematic Biology.

Raphus cucullatus

SKE73 (accession number NMW.Z.1914.158) skeleton in good condition (Peter Howlett, pers. comm., 20th February 2001). "A very fine skeleton of this extinct bird [the dodo] has recently been purchased by the Council of the National Museum of Wales" (Proger & Paterson 1915, p.47). Accession number: NMW.Z.1914.158. The skeleton was purchased from Rowland Ward in 1914, who had in turn obtained it from the French firm Les Fils d'Emile Deyrolle in Paris. Hallett (1916) noted that on 8th March 1915 an exhibit of the "Skeleton of the Dodo, and preparations of this bird and the Greak Auk as they appeared in the flesh" was made and commented on by William Evans Hoyle (p.98).[75] Part of the upper jaw, skull, some of the vertebrae, some of the ribs, phalanx, humerus, and a few other small bones are restorations (Peter Howlett, pers. comm., 20th February 2001).



SKE73 (© Howard Dickins, 5th June 2012).

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[75] William Evans Hoyle (1855-1926). Director of the National Museum of Wales 1909-1926.

Hunterian Museum, Glasgow

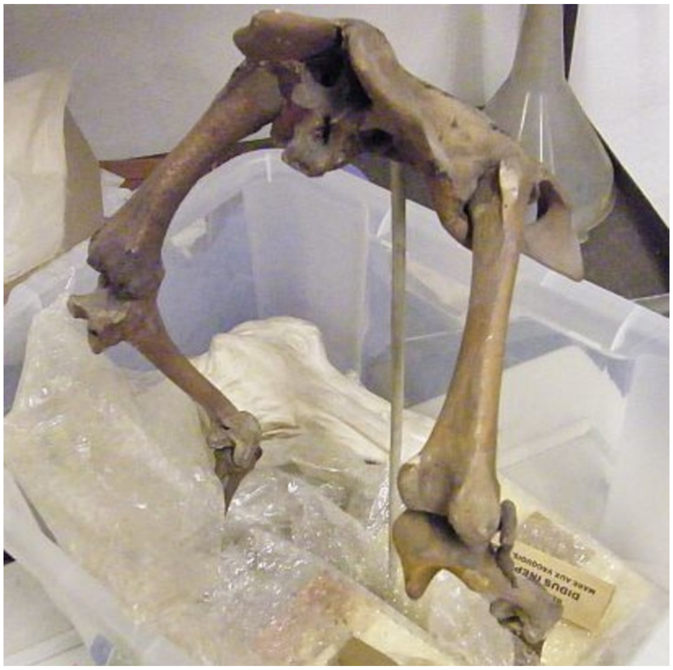
The Zoology Museum, Hunterian Museum, University of Glasgow, University Avenue, Glasgow G12 8QQ

The Old College Hunterian Museum was transferred to a site at Gilmorechill, which opened in 1877. Information from Maggie Reilly (pers. comm., 24th April 2012; 17th January 2013) and other sources.

Geology Collections

Raphus cucullatus

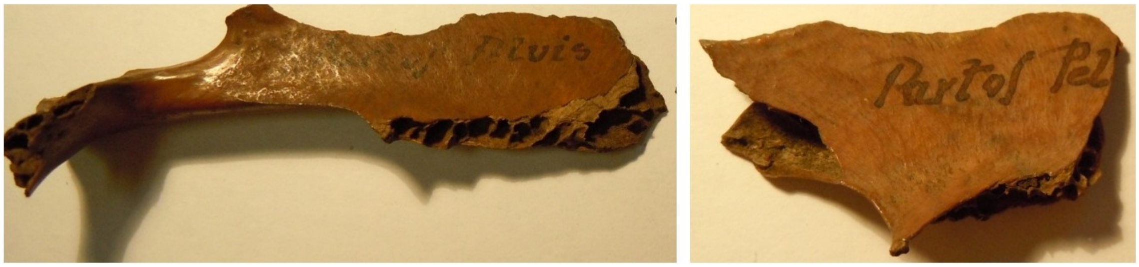
GLAHM 132303 (accession number) articulated and mounted pelvis, femora, tibiotarsi, fibulae and tarsometatarsi. Completed with plaster to create a whole pelvic girdle. The pelvis bears the word 'Pelvis' in black ink. There is no information as to the origin of these bones and it is not known whether they were wired up at the Hunterian or were acquired as articulated. Stored separately from GLAHM 149451.
(see: http://www.huntsearch.gla.ac.uk/cgi-bin/foxweb/huntsearch/DetailedResults.fwx?collection=geology&SearchTerm=132303&reqMethod=Link Accessed 26 April 2012).



GLAHM 132303 (© The Hunterian, University of Glasgow 2013).

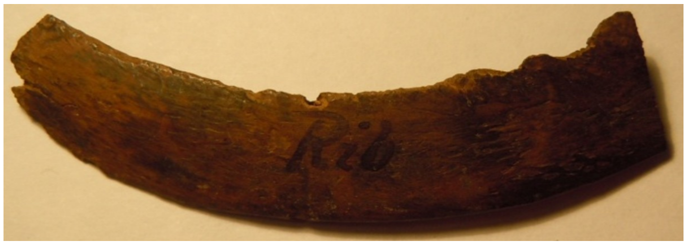
GLAHM 140931 (accession number) fragment of pelvis, bearing "Part of Pelvis" in dark ink

GLAHM 140932 (accession number) fragment of pelvis, bearing "Part of Pel[vis]" in dark ink (the latter part of 'Pelvis' being lost due to the fragment being broken)



GLAHM 140931 and 140932 (© The Hunterian, University of Glasgow 2013).

GLAHM 140933 (accession number) curved rib fragment, bearing ‘Rib’ in dark ink



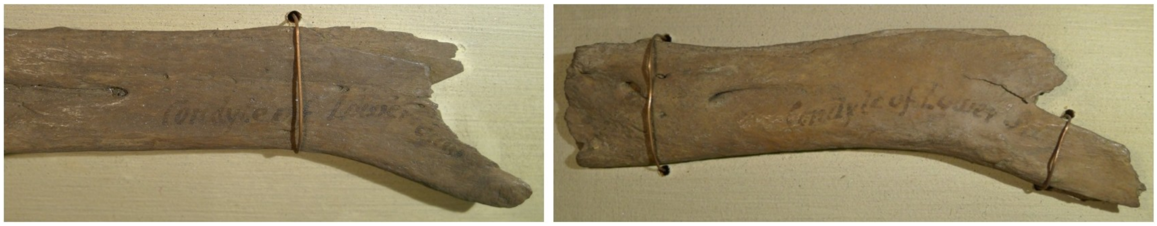
GLAHM 140933 (© The Hunterian, University of Glasgow 2013).

GLAHM 140934 (accession number) ?scapula shaft fragment (or possibly rib fragment), bearing ‘Rib’ in dark ink

GLAHM 140935 (accession number) left humerus, wired to board

GLAHM 140936 (accession number) symphysis and distal part of right mandibular ramus, bearing “Condyle of Lower Jaw” in dark ink on medial face. Wired to board

GLAHM 140937 (accession number) medial fragment of left mandibular ramus, bearing “Condyle of Lower Ja[w]” in ink on lateral face. Wired to board



GLAHM 140936 and 140937 (© The Hunterian, University of Glasgow 2013).

GLAHM 140938 (accession number) proximal end of right mandibular ramus, wired to board

GLAHM 140939 (accession number) proximal end of left mandibular ramus, wired to board

GLAHM 140940 (accession number) middle cervical vertebra, wired to board

GLAHM 140941 (accession number) middle cervical vertebra (lacking left prezygapophysis and costal process), wired to board

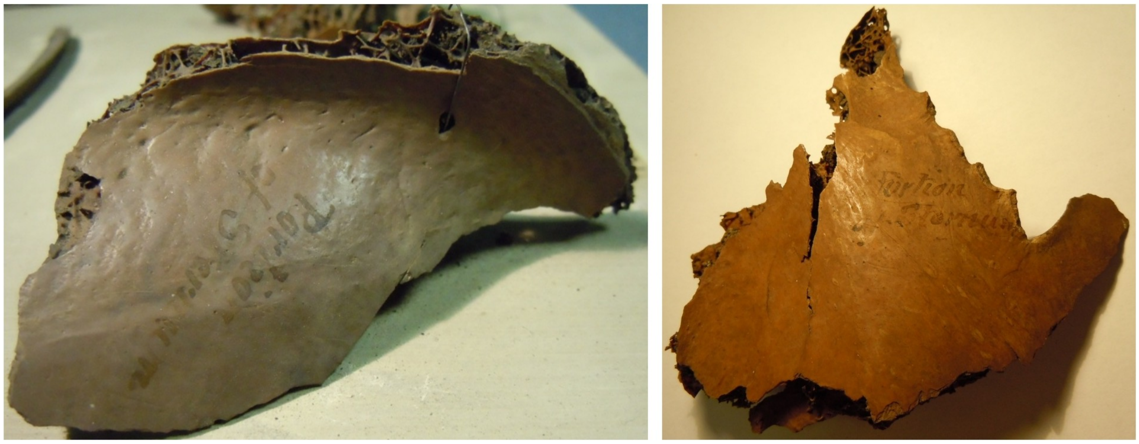
GLAHM 140942 (accession number) left scapula (lacking distal extremity), wired to board

GLAHM 140943 (accession number) right scapula (lacking distal extremity), wired to board

GLAHM 140944 (accession number) long curved rib (lacking extremities), wired to board

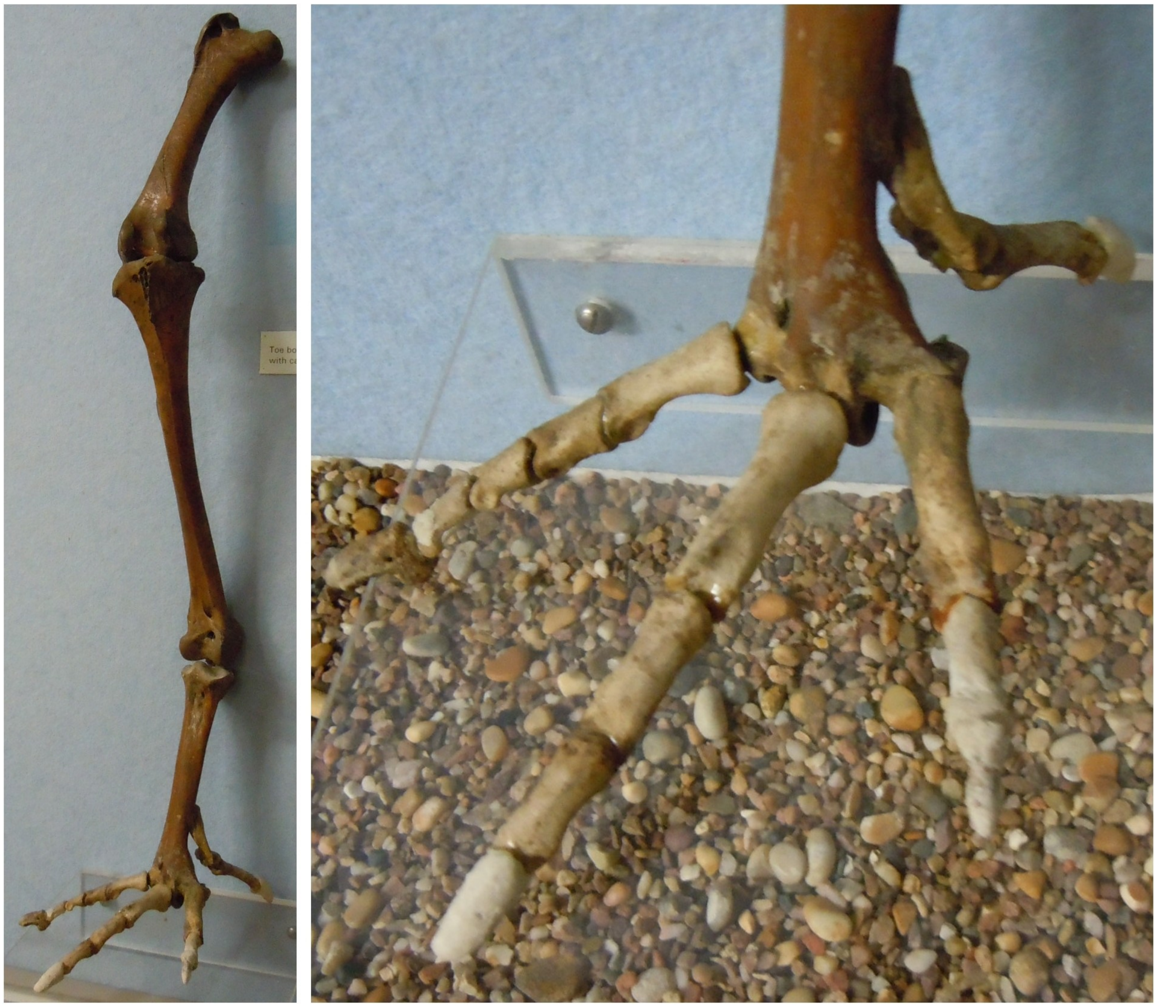
GLAHM 140945 (accession number) fragment of sternum, bearing “Portion of Sternum” in dark ink

GLAHM 140946 (accession number) fragment of sternum, bearing “Portion of Sternum” in dark ink



GLAHM 140945 and 140946 (© The Hunterian, University of Glasgow 2013).

GLAHM 140947 (accession number) right fibula, wired to board
GLAHM 140948 uncoloured plaster cast of the Tradescant head
GLAHM 140949 uncoloured plaster cast of the Tradescant head
GLAHM 140950 right femur, right tibiotarsus, right tarsometatarsus. Part of the articulated leg on display (the other elements being GLAHM Z1688). The bones are brown in colour. Cracks in the femur have been infilled with a matching-coloured filler. The display label reads: "Toe bones of Dodo *Raphus* with cast of limb bones". However, the femur, tibiotarsus and tarsometatarsus are real and it may be that the phalanges are the casts.



GLAHM 140950 and Z1688 (© The Hunterian, University of Glasgow 2013).

GLAHM 149451 (accession number) twelve bones (distal mandible now broken in two): symphysis and distal portion of right mandibular ramus, medial portion of left mandibular ramus (joins with the former to form a distal mandible), two cervical vertebrae, pelvis (damaged distally), left femur, right femur, left tibiotarsus (lacking medial portion of shaft), right tibiotarsus (damaged proximocranially), two fibulae, left tarsometatarsus (bearing 'B' in in on the cranial face), right tarsometatarsus. Locality is given as "Mare aux Vacquois",[76] Mauritius. Purchased for the museum in 1917 from Wintour Frederick Gwinnell. The Hunterian Museum geology collections website relates that: “Comparing it to Gwinnell’s original sale photograph, it seems that one bony element is missing – mandible is also broken in two parts now”. Label reads: “DIDUS INEPTUS” “MARE AUX VACQUOIS”. A postcard depicts the bones as Gwinnell exhibited them, enabling confirmation of their identity. These bones are mounted on two boards (with the exception of one fibula (the other one appears to be missing), which is mounted on board three):

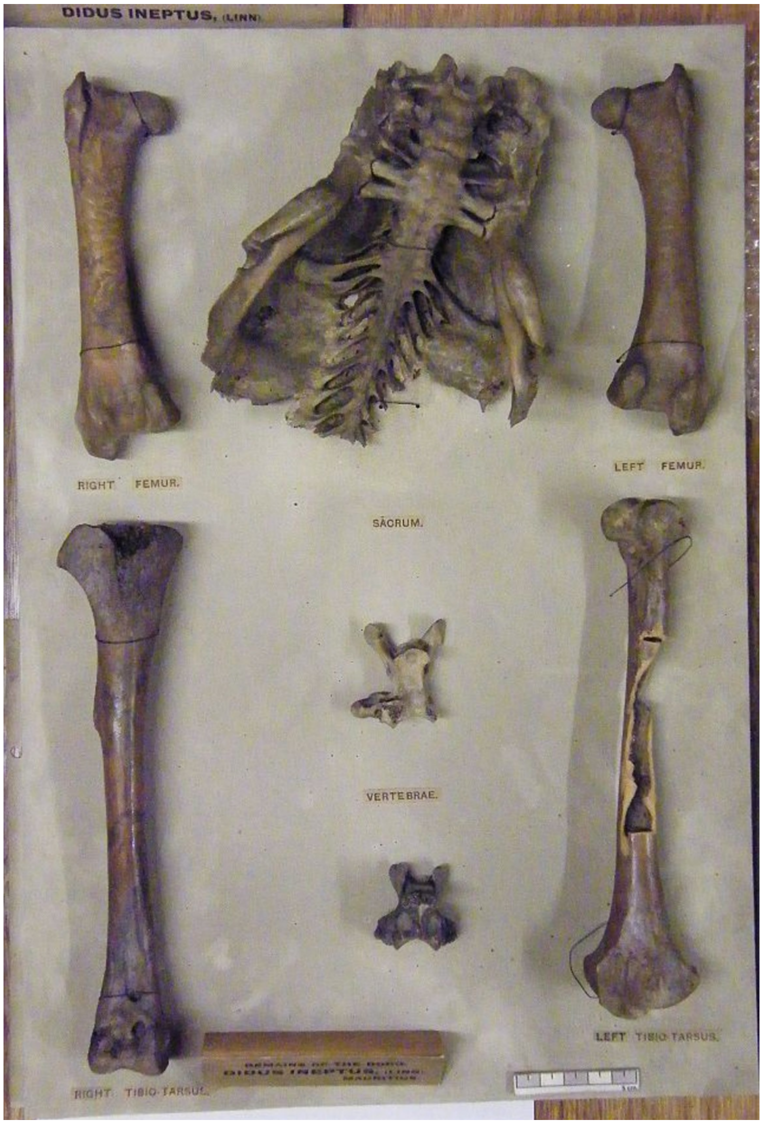
---

[76] Probably a mistake for Mare aux Songes (Théodore Sauzier, who excavated Mare aux Songes (see Parish 2013, pp.252-253) was named as president of the "Comité des Souvenirs historiques" by John Pope Hennessy, and the latter might have caused Mare aux Songes to be drained (Anthony Cheke, pers. comm., 26th April 2012) – see GLAHM 149451). By the time of Hennessy's governorship Mare aux Vacquois had been turned into a reservoir

On board one:
two cervical vertebrae, pelvis, left femur, right femur, left tibiotarsus, right tibiotarsus.

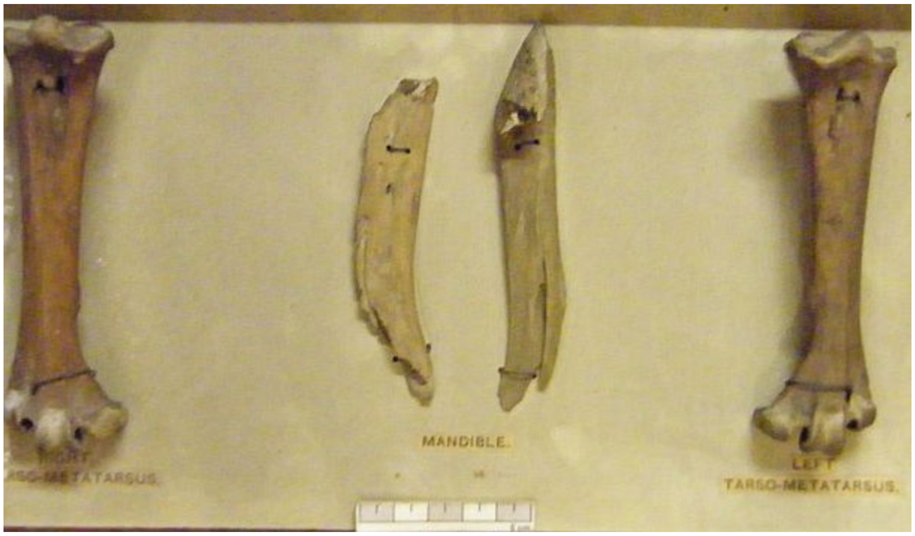
On board two:
mandible in two pieces (formerly united), left tarsometatarsus, right tarsometatarsus.

(see: http://www.huntsearch.gla.ac.uk/cgi-bin/foxweb/huntsearch/DetailedResults.fwx?collection=geology&SearchTerm=149451&reqMethod=Link accessed 26 April 2012).

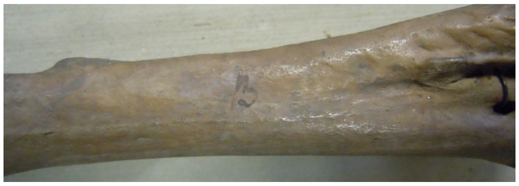


(Anthony Cheke, pers. comm., 5th February 2013). ‘Vacquois’ is a common old alternative spelling of Vacoas (*ibid*.).

GLAHM 140951 (© The Hunterian, University of Glasgow 2013).



GLAHM 140951 (© The Hunterian, University of Glasgow 2013).



Left tarsometatarsus (GLAHM 149451) bearing 'B' on the cranial face (© The Hunterian, University of Glasgow 2013).

A note card headed "Le Réduit, Mauritius." reads:

> From
> Sir John Pope Hennessy
> Governor of Mauritius
> Some bones &
> portion of the skull
> of the Dodo. Mare aux Vacquois
> Mauritius.
>
> On the other side is the official heading
> of notepaper for the Isle of Mauritius.
> and bears the Governor's handwriting
> – "Some bones and portion of the Skull
> of the Dodo"–
> These bones were recovered from a swamp,
> the Mare aux Vacquois, in Mauritius,
> which swamp was drained and dug over
> carefully, at the Governor's expense and
> under his direction, for the special quest
> of such bones – so very rare are any of
> the remains of this quaint large bird.

The words "Some bones & portion of the skull of the Dodo." are in the handwriting of Pope Hennessy and the other written text is in Gwinnell's hand. A note from Gwinnell in the collections archive states:

> 33, St. Peter's Square,
> W.
> A valuable series of bones of the
> extinct Dodo (Didus ineptus), which,
> with the Solitaire, form the Family Dididae,
> a very aberrant group of the Natural Order
> Columbae, which includes Doves and Pigeons.
> Its remains are confined to the Isle of
> Mauritius, as those of the related bird,
> the Solitaire, are to the Isle de Reunion
> and those of the huge AEpyornis to Madagascar
> The Dodo was killed off entirely by the
> early Dutch settlers just 200 years ago,
> being excellent for food, but heavy and
> unwieldy and quite unable to fly.
> The bones shown were, in part an
> old find, named by Sir Richard Owen,
> but mostly were a result of explora-
> tion in a swamp, drained for the purpose
> by the late Governor of Mauritius,
> Sir John Pope Hennessy, [77] whose son[78]
> presented them to his tutor, the Dec^{r}
> present owner and exhibitor 1[92]3.
> Wintour F. Gwinnell F.G.[?]BSc

An accompanying card reads:

> 33, St. Peter's Square,
> W.
> This drawing of the
> Dodo was kindly
> made for her tutor,
> Mr W. F. Gwinnell.

There is also correspondence between Gwinnell and John Walter Gregory[79] indicating the purchase of the bones from the former. In the Gwinnell archive there is also a letter from Edward W. Robinson (see The Manchester Museum) to S. L. Waring,[80] dated 1866, and acknowledging the receipt of a payment of £5 and remarking that "all your set were packed carefully in a box and each bone or portion named". On the cover of the letter is written: "Dodo bones £5-0-0".

Gregory became curator of Geology at the Hunterian Museum in 1904. He arranged the purchase of the

---

[77] John Pope Hennessy (1834-1891). Governor of Mauritius 1883-1889.

[78] Either Ladislaus Herbert Richard Pope-Hennessy (1875-1942) or Hugh Pope-Hennessy (b. 1883).

[79] John Walter Gregory (1864-1932). Professor of Geology at Glasgow 1904-1929. He became curator of Geology at the Hunterian Museum in 1904.

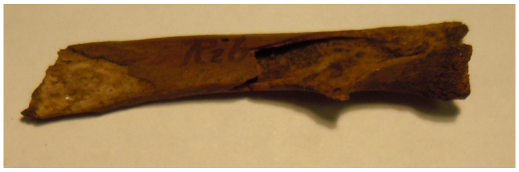
[80] Probably Samuel Long Waring (d.1879), FGS, of The Oaks, Norwood, Surrey.

Gwinnell collection.

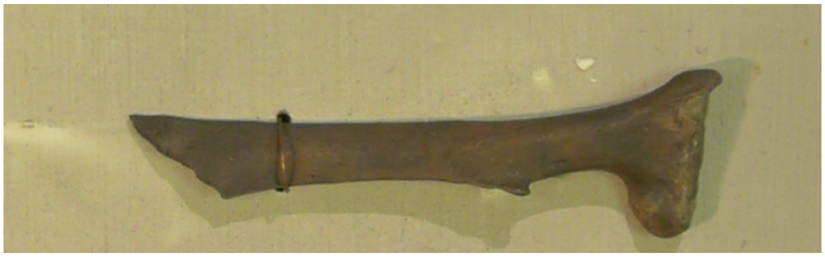
The bones on board three (with the probable exception of the fibula) and the box of pelvic fragments are of uncertain origin; they may be the bones referred to in the Robinson-Waring correspondence.

The bones (confirmed as dodo by Julian Hume) on board three comprise: four mandible fragments, two vertebrae, three ribs (or rib fragments; at least one of these bears ‘Rib’ in dark ink), two portions of sternum (at least one of these bears “Portion of Sternum” in dark ink), humerus, fibula (dark in colour).

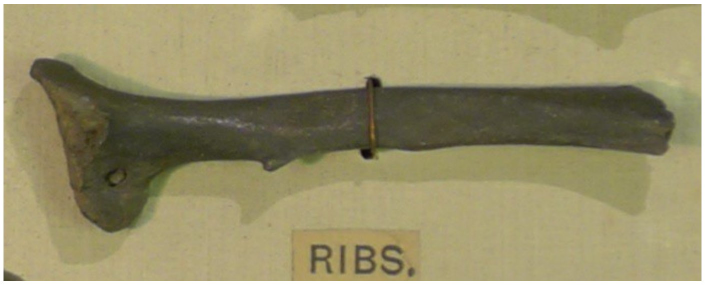
In addition, there is a small box of pelvic fragments. Some of the bones on board three and in the small box have the name of the bone written on them.



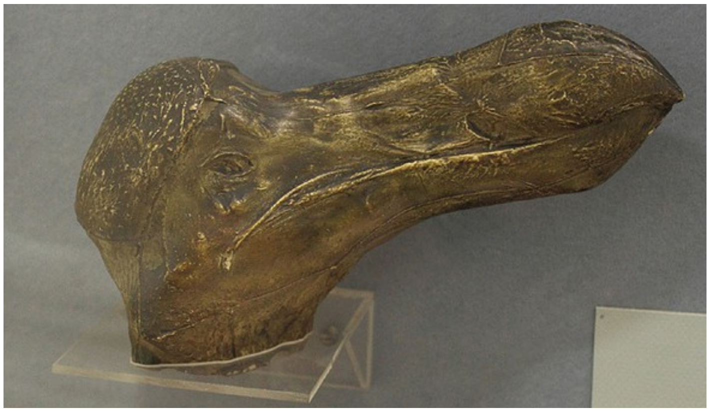
GLAHM 140934 (© The Hunterian, University of Glasgow 2013).



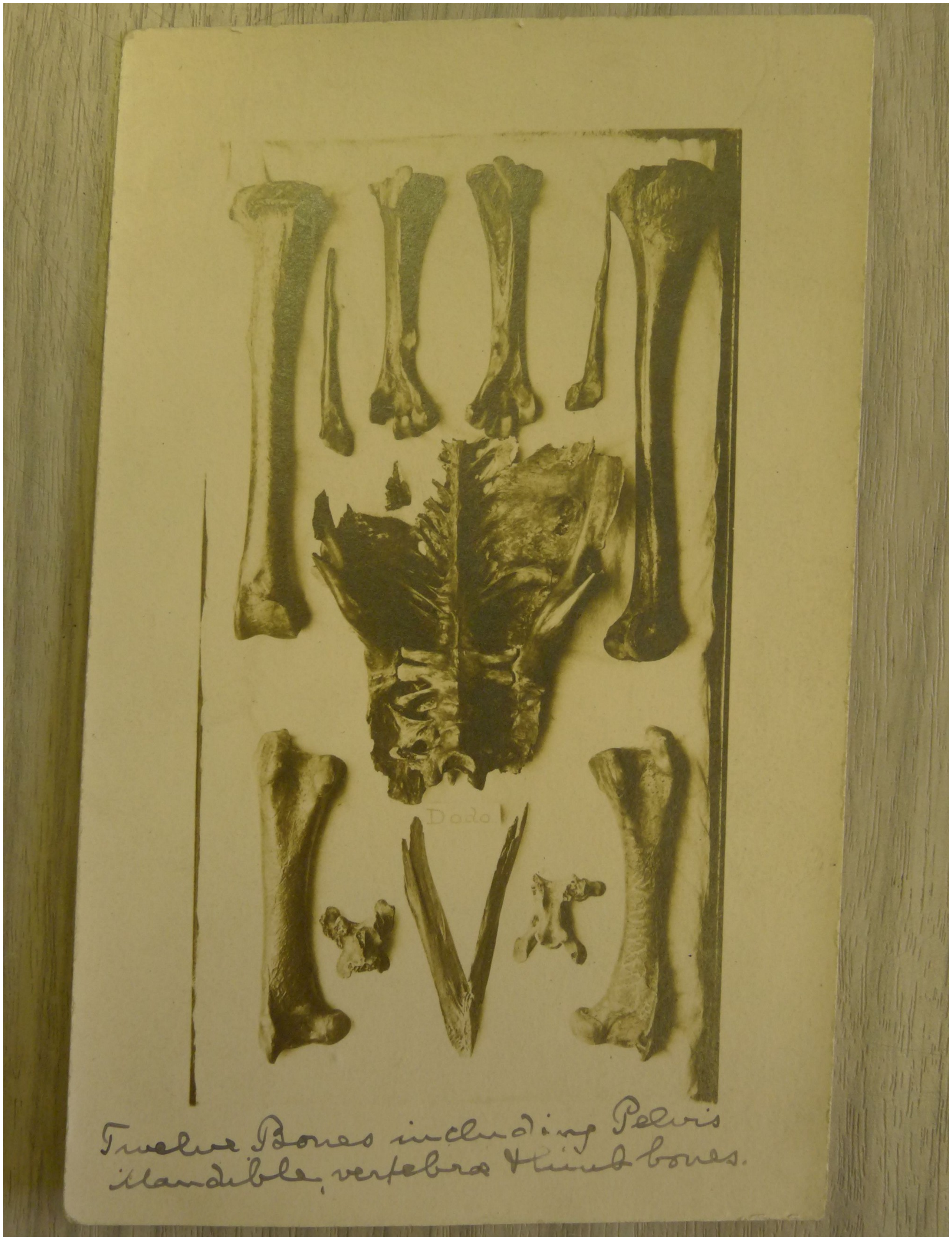
GLAHM 140942 (© The Hunterian, University of Glasgow 2013).



GLAHM 140943 (© The Hunterian, University of Glasgow 2013).



GLAHM 140753 on display (© R. Nye, 13th July 2012).



Twelve Bones including Pelvis
Mandible, vertebræ & limb bones.

Gwinnell's dodo bones (GLAHM 140951) (© The Hunterian, University of Glasgow 2013). The handwritten inscription reads: "Twelve Bones including Mandible, vertebræ & limb bones."

Zoology Collections

Raphus cucullatus

GLAHM 140753 (accession number) (ZOO:MUS:DC18) Zoology Museum: Display Cases: Bird Evolution: brown-coloured plaster cast of the Tradescant head, painted model, dodo foot bones.[81] The cast of the head has "Thomas Johnstone, Maker, Oxford" engraved on its base and is accompanied by an old record card, indicating that the specimen was in the museum collections prior to 1935.

GLAHM Z1688 pedal phalanges and first metatarsal. Part of the articulated leg on display (the other elements being GLAHM 140948). The pedal phalanges are pale in colour with modelled (*i.e.* not cast) unguals, except that of digit IV which is real bone. The phalanges are real bone and are probably accession number Z1688 (pedal phalanges of the dodo gifted to the museum in 1942 by Robert Broom[82]).

Wintour Frederick Gwinnell exhibited "almost a complete skeleton of the dodo" at the Geological Society's "At Home" on 16th December 1898 (Martin 1899, p.318). Gwinnell also exhibited a "series of bones of the Dodo" at the Ordinary Meeting of the Geologists' Association on 4th November 1904 (Salter 1906, p.58). Gwinnell also showed "Bones of the Dodo" from his collection at the Annual Conversazione of the Selbourne Society, held in Burlington Gardens on 25th May 1906 (Boulger & Webb 1906, p.134).

Most of the dodo bones were acquired with the Gwinnell Collection and from Mr. F. O. Barlow[83] (Papers from the Geological Department, Glasgow University 1931, *James MacLehose and Sons*, volume 13).

An undated and unattributed typescript gives the following information on the Hunterian dodo collections:

> "Remains of the dodo (Didus ineptus ((Linn.))"
>
> "Bones of lower limbs mounted with sacrum and pelvis [presumably GLAHM 132303]"
> "24 other bones or fragments of bones including limb bones vertebrae and mandible [presumably the bones on the three boards]"
> "A Plaster model restoration of the dodo"
>
> "20 bones or fragments purchased from the British Museum in 1917 [see F. O. Barlow, above]"
> "11 bones of fragments purchased from W.F. Gwinnell in 1917 [perhaps a repetition of the above bones grouped under "24 other bones or fragments of bones"]"
> Maggie Reilly (pers. comm., 26th April 2012).

Pezophaps solitaria

Geology Collection

GLAHM V103 to V123 four fragments of mandible, two vertebrae, fragments of synsacrum, three ribs, two fragments of sternum, humerus, femur, fibula, five tibiotarsi, four tarsometatarsi, two boxes of fragments. Includes display mounted specimens. Collected in 1874 by Isaac Bayley Balfour (Transit of Venus Expedition) and presented by him in 1883 (Hume *et al*. 2014b; Maggie Reilly, pers. comm., 11th January 2001). The accompanying printed label reads:

REMAINS OF THE SOLITAIRE.
PEZOPHAPS SOLITARIA (GMEL).
RODRIGUEZ.

---

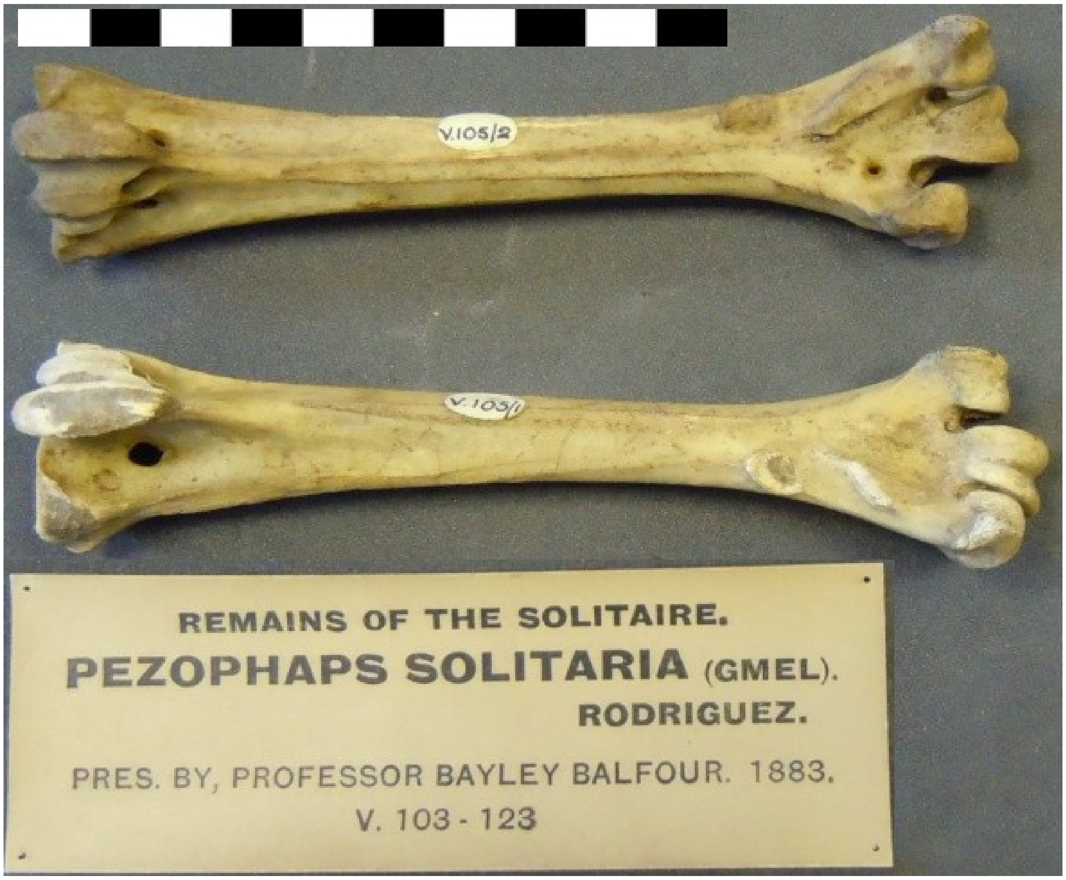
[81] The number ZOO:215.F23 (dodo skull cast and toe bone: http://www.huntsearch.gla.ac.uk [accessed 21 April 2011]) is an error (now corrected) and just refers to the empty packaging for the display items.

[82] Robert Broom (1866-1951) Scottish South African doctor and palaeontologist. Keeper of vertebrate palaeontology at the South African Museum, Cape Town. He became Assistant in Palaeontology at the Transvaal Museum in 1934.

[83] Probably Frank O. Barlow (*fl*. 1910s-1930s), technician and assistant to Woodward at the NHMUK.

PRES. BY, PROFESSOR BAYLEY BALFOUR, 1883.
V. 103 - 123

GLAHM V103 pedal phalanx
GLAHM V104 pedal phalanx
GLAHM V105/1 left tarsometatarsus (♀)
GLAHM V105/2 right tarsometatarsus (♀)


V.105/2
V.105/1
REMAINS OF THE SOLITAIRE.
PEZOPHAPS SOLITARIA (GMEL).
RODRIGUEZ.
PRES. BY, PROFESSOR BAYLEY BALFOUR. 1883.
V. 103 - 123

GLAHM V105 (© The Hunterian, University of Glasgow 2013).

GLAHM V106 right tarsometatarsus (♂, with damage to medial side of proximal shaft)
GLAHM V107 left tarsometatarsus (♀, with damage to caudal face of hypotarsus)
GLAHM V108 right tibiotarsus (?♀, lacking proximal and distal extremities)
GLAHM V109 right tibiotarsus (♀, lacking distal end)
GLAHM V110 left tibiotarsus (♀, lacking proximal end)
GLAHM V111 tibiotarsus (♀, lacking distal end)
GLAHM V112 left tibiotarsus (♂, lacking portion of medial part of shaft)
GLAHM V113 right femur (♀, lacking lateral condyle)
GLAHM V114 left femur (?♂, lacking femoral trochanter and distal extremity)
GLAHM V115 synsacrum (♂)
GLAHM V116 synsacrum (damaged ventrally, lacking distal end)
GLAHM V117 ?right scapula (lacking distal extremity)
GLAHM V118 ?scapula (damaged proximally, lacking distal end)
GLAHM V119 right coracoid (?♂, lacking lateral process)
GLAHM V120 left acetabular region
GLAHM V121 left acetabular region

GLAHM V122 right acetabular region
GLAHM V123 left acetabular region

Gwinnell's fossil and mineral collection, including part of that of Charles Ottley Groom Napier, went to the Hunterian Museum sometime around 1920-1922 (http://www.minrec.org/labels.asp?colid=857).

Glasgow Museums Resource Centre

Glasgow Museums Resource Centre, 200 Woodhead Road, South Nitshill Industrial Estate, Glasgow G53 7NN
Kelvingrove Art Gallery and Museum, Argyle Street, Glasgow G3 8AG

Raphus cucullatus

DB.8714 uncoloured plaster cast of the Tradescant head (in storage). Present in the museum collections for at least 33 years and probably much longer. It was originally unnumbered. 150 x 215 x 105mm, 993g (Richard Sutcliffe, pers. comm., 20th July 2012).

Andersonian Museum, Glasgow

The Museum of Anderson's University (the Andersonian Museum) opened in March 1831 and in October of that year John Scouler was placed in charge. The Andersonian closed in 1888 and most of the zoological collection was given to the Hunterian Museum (see above). However, the Andersonian solitaire material, at least, does not appear to be present in the Hunterian Museum collections (Maggie Reilly, pers. comm.; pers. obs.).

Raphus cucullatus

"Models of the foot of the Dodo" (Anon. 1865a, p.2). Housed on the ground floor of the museum. Current whereabouts unknown.

Pezophaps solitaria

Six bones found by Honoré Eudes in 1832. Deposited in the Andersonian Museum by Charles Telfair. Current whereabouts unknown. Solitaire material (as listed by Strickland & Melville 1848):

Right femur (♂) lacking both extremities. No.8 of Strickland (1853). Erroneously described as a left femur by Strickland & Melville (1848).

Right femur (♀) damaged at the extremities. Cavern. No.14 of Strickland (1853). Length (cast OUM 19621): 143.5mm. Figured: Strickland & Melville (1848, pl.xiv, figs.4-7 [reproduced: Parish (2013, fig.5.36)]).

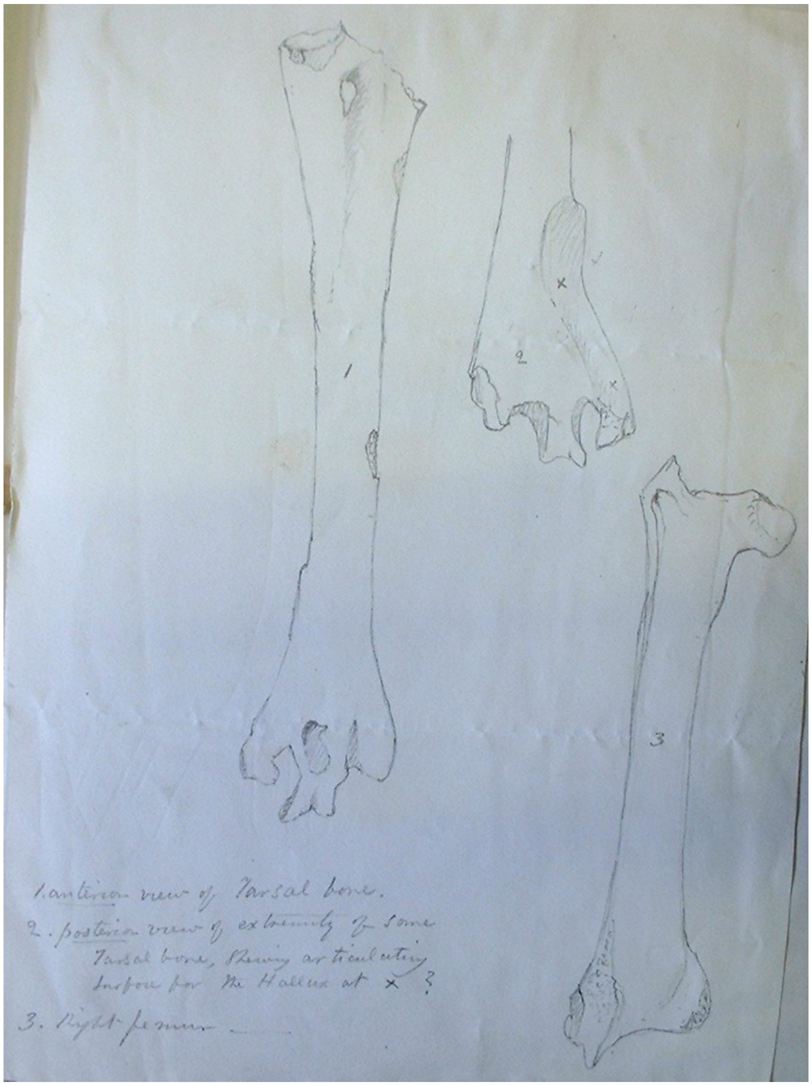
Left femur (♀) damaged at extremities. Length (cast OUM 19621): 123mm.

Left tibiotarsus, (♂) lacking proximal end. No.10 of Strickland (1853). Strickland (1853) thought that this was possibly from the same individual as NHMUK A.1356, due to its very similar size and form. Figured: Strickland & Melville (1848, pl.xv, figs.1-1a [reproduced: Parish (2013, fig.5.37)]).

Left tarsometatarsus (♂) damaged at proximal & distal extremities. No.12 of Strickland (1853). Assigned to *Didus nazarenus* by Bartlett (1851). This bone was stated by A. Newton (1865a) to be "now in the British Museum" (p.200). Figured: Strickland & Melville (1848, pl.xv, figs.2-2b [reproduced: Parish (2013, fig.5.37)]); Bartlett (1851, pl.xlv, fig.1).

Right tarsometatarsus (♀). No.14 of Strickland (1853). Figured: Strickland & Melville (1848, pl.xv, fig.4 [reproduced: Parish (2013, fig.5.37)]).

For further details concerning the Andersonian *Pezophaps* material see Parish (2013, pp.228-230, 232, 337, 379n59).


1
2
×
×
3
1. anterior view of Tarsal bone.
2. posterior view of extremity of same Tarsal bone, shewing articulating surface for the Hallux at × ?
3. Right femur —

Sketches of right femur (probably no. 14 of Strickland 1853) and left tarsometatarsus (no.12 of Strickland 1853) (UMZC Dodo Book D-009. © Jolyon C. Parish; UMZC).

In a letter to William Jardine, dated 23rd January 1847, the Edinburgh botanist John Hutton Balfour (1808-1884) wrote: "There are a few bones of the Dodo [= solitaire] in the Andersonian Museum you can easily have access to them [...] The bones are by no means complete. They were examined by Dr. Scoular" (letter in the Royal Scottish Museum collection, quoted in Jackson & Davis 2001, p.181). In the letter Balfour offered to supply casts and drawings of the bones.

William Gourlie wrote to Strickland (27th July 1847; E-0602) from the museum in Glasgow, at 12 South Frederick Street, stating that he would send Strickland's note to the director of the Andersonian Museum along with the cast of the foot of the dodo. He added that they should agree to having one of the bones longitudinally sectioned. In a letter of 18th December 1847 (D-230), Melville informed Strickland of the arrival of the Andersonian Museum bones. Melville wrote to Gourlie in October 1848 (D-264) from the British Museum that he would send some of the casts that were made to Glasgow and that he hoped Gourlie had received the copy of Strickland & Melville (1848) for the Institution at Glasgow. He apologized for keeping the bones for such a period (Rookmaaker 2010).

Gourlie wrote to Strickland on 6th December 1848 from 8 Frederick Street, Glasgow (D-169), to request the immediate return of the Andersonian solitaire bones, which he obtained as a loan from the Directors of that museum to pass on to Melville. He stated that the bones should have been returned when the copy of Strickland & Melville (1848) was sent to him. In a letter of 16th April 1849 (D-265), Gourlie informed Strickland that the solitaire bones had been returned to Glasgow in December 1848 and remarked that he had suggested two private methods of transporting the specimens but eventually received a note from Melville stating that the bones "must be returned, and that he must just prepay the carriage" (quoted in Rookmaaker 2010, p.256). John Wolley wrote to Strickland (3rd January 1849; D-209) that he had seen the solitaire bones at the Andersonian Museum on the previous day (Rookmaaker 2010).

In a letter of 16th November 1852 (E-0599), Gourlie asked if Strickland's publishers had any plates of the dodo or solitaire that could be hung next to the bones of the solitaire and cast of the dodo foot. He later (10th January 1853; E-0603) acknowledged receipt of the plate of the dodo (Rookmaaker 2010).

Strickland (1848) noted that the Andersonian Museum solitaire specimens "still contain nearly the whole of their animal matter, present a glossy surface, considerable specific gravity, and are neither changed in colour nor incrusted with extraneous matter. They have the appearance of having been obtained from a reddish soil on the floor of some dry cave" (p.53). The bones were temporarily entrusted to William Jardine, who brought them to the June 1847 meeting of the BAAS at Oxford and also distributed casts of them (Strickland 1848). Melville (1848) stated that the tarsometatarsus he examined "exhibits marks of disease similiar to those found in the bones of birds dying in menageries, the compact osseous tissue is opened out" (p.118). This is probably actually due to weathering, as many other specimens examined do not exhibit this (pers. obs.).

John Scouler informed Iosif (Joseph) Hamel that these bones, collected on Rodrigues, were sent to William Hooker,[84] from whom Scouler received them. Scouler recognized three or four bird foot bones amongst them (Hamel 1848). Casts of Andersonian Museum material (as listed by Strickland & Melville 1848) are in the collections of the OUM (19621), NHM (A.1361-1363), UMZC (415.M), and Leiden.

It was noted that at the meeting of the Philosophical Society of Glasgow on 3rd January 1849 that "Mr. [William] Gourlie mentioned that a number of bones, belonging to the extinct bird of the Island of Rodriguez, called the solitaire, and the property of the Andersonian Museum, had been laid on the table. Figures of all these bones, which are of great rarity, have been given in the work–"The Dodo and its Kindred," by Mr. Strickland and Dr. Melville, to whom the Trustees kindly lent them, for the puropse of illustrating their work, a copy of which had been presented to the Museum by the authors" (Anon. 1855, p.19).

"Leg bones of the Solitaire" are mentioned in the Catalogue of the Museum of Anderson's University (1865, p.2) under "No.1.- A collection of geological specimens too large to permit of them being displayed in their proper places" (p.1), on the ground floor of the museum. They were labelled as "Dodo's bones from Mauritius" (Strickland 1844).

In addition to these, the Sixteenth Annual Report of the Committee of the Free Public Library, Museum, and Gallery of Arts and Education, of the Borough of Liverpool noted the following: "Three Slabs of Fossil Fish, from the Orkneys, and an Axolotl, received from the Andersonian Museum, Glasgow, in exchange for a set of Casts of Dodo bones" (Anon. (1868c, p.15. See World Museum, Liverpool).

Royal Museum of Scotland, Edinburgh

Royal Museum of Scotland, Chambers Street, Edinburgh EH1 1JF. Department of Natural History.

Raphus cucullatus

Skeleton. Constructed in Edinburgh from bones from the Mauritius Institute. Much of the skeleton is cast material (*e.g.* skull (cf. the Copenhagen specimen), cranial cervical vertebrae, dorsal vertebrae, pelvis) with some original bones (*e.g.* mandible, middle cervical vertebrae, left and right femora

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[84] Probably William Jackson Hooker (1785-1865). Regius Professor of Botany in the University of Glasgow.

and tibiotarsi). See the Mauritius Institute, below.
Casts and various bones (Janoo 1997)

In MS 2917.3 (Minute Book No.III) of the Edinburgh Geological Society, in a notebook, dated 7th July 1842-2nd May 1850 there is mention of a demonstration of "The upper part of the leg of the dodo".

University Museum, Edinburgh – see Liverpool
Anon. (1867c) listed the museum's exchanges:
"A Set of Casts of Dodo Bones, and duplicate specimens of Hydrozoa, &c., sent to Professor Allman, University Museum, Edinburgh.

Donations received by the Edinburgh Museum of Natural History during 1866 included: "Casts of bones of a dodo, didus ineptus, found in Mauritius in 1865; also specimens of pyrosoma and other marine invertebrata. [No.] 22 [Donated by] Free Public Museum, Liverpool" (Allman 1867, p.263).

Allman (1867) remarked: "One of the most important donations of the past year is a set of casts of the remains of the Dodo. The remains from which the casts have been taken consist of a great part of the skeleton of this extinct bird, and had been recently discovered in the Island of Mauritius, by Mr. H. P. Higinson, who presented them to the Free Public Museum of Liverpool. The casts have been made with great care by direction of the authorities of the Liverpool Museum, and a complete set presented by them to the Edinburgh Museum of Science and Art" (p.261).

Pezophaps solitaria

Z.DT.648 mounted skeleton. Rodríguez-Pontes (2014) remarked that "Restoration of life-like appearance of specimen Z.DT.648 provided evidence for the possibility of its being a juvenile individual (presumed male) based relative body proportions, i.e. shorter neck, longer legs and a more stylised adult male trunk. Also, body size was more like that of a male than a female" (p.15). However, no evidence to suggest a juvenile origin (*e.g.*, immature bone grain, lack of fusion of elements, lack of pathological features commonly associated with adult male solitaires) was given, neither was the origin from a single individual demonstrated, and the skeleton itself looks to be comprised of both male and female elements (pers. obs. from photograph). Figured: Rodríguez-Pontes (2014, figs.2, 3, 5, 7).

Ramsay Heatley Traquair, Keeper of Natural History at the Museum of Science and Art in Edinburgh, read a "Note on a Skeleton of the extinct Solitaire (*Pezophaps solitaria*, Gm.) lately added to the Museum of Science and Art" at the meeting of the Royal Physical Society of Edinburgh, held on 18th April 1883 (Session CXII) (Anon. 1883a, p.356). Bones of the solitaire at Edinburgh were also mentioned in a memorandum, written by Alfred Newton, attached to UMZC 415.R.

DF 202/9, Correspondence and papers relating to distribution of collections and preparation of reports 1875-1876, Royal Society Transit of Venus Expeditions, NHMUK General Library Archives:

MUSEUM OF SCIENCE AND ART,
Edinburgh 1st April 1876

Dear Dr Günther,
I have today unpacked and
gone over the Solitaire bones which
you were good enough to send us, and
find the list quite correct with the
exception that you have sent 16 pairs
Tibiae instead of 10 Was it Tibiae
in which Dr Carte's set was deficient?
I shall be glad to send you back

6 pairs -
Yours very sincerely
R.H. Traquair
D^r^ Günther F.R.S.

Solitaire-bones delivered to the Museum of
Science & Art, Edinburgh
Brit. Mus. 28.2.76 AGünther

x 4 imperfect skulls & several mandibles
x 1 complete series of Cervical & Dorsal Vertebræ
x 38 isolated vertebræ & 1 Atlas
x 6 pelves
x 3 pubic bones
x 1 incomplete set of ribs & 17 odd ribs
x 1 sternum
x 4 pairs of coracoids
x 4 " scapulæ
x 7 " humerus
x 4 " ulna & radius
x 1 " radius
x 4 " carpals
x 1 Furcula
x 12 pairs of femur
x Rings of trachea
10 pairs of tibia
x 7 " fibula
x 10 " tarsus
x A selected lot of phalanges.
[in another hand]

There have been 16 pairs Tibia sent instead of 10 otherwise the list is quite correct as indicated by the x affixed to each item.

Unpacked and examined 1st April 1876
Ramsay H. Traquair

Bell-Pettigrew Museum, University of St. Andrews, Scotland

Bell-Pettigrew Museum, College North Street, St. Andrews, KY16 9AJ

Information from Sandy Edwards (pers. comm., 13th September 2002), Grant Brown (pers. comm., 13th March 2012; 23rd March 2012) and http://museumadmin.st-andrews.ac.uk/catalogueAdmin.aspx [accessed 3 May 2012]. Accession numbers in bold. Location: 33, Bute.

Raphus cucullatus

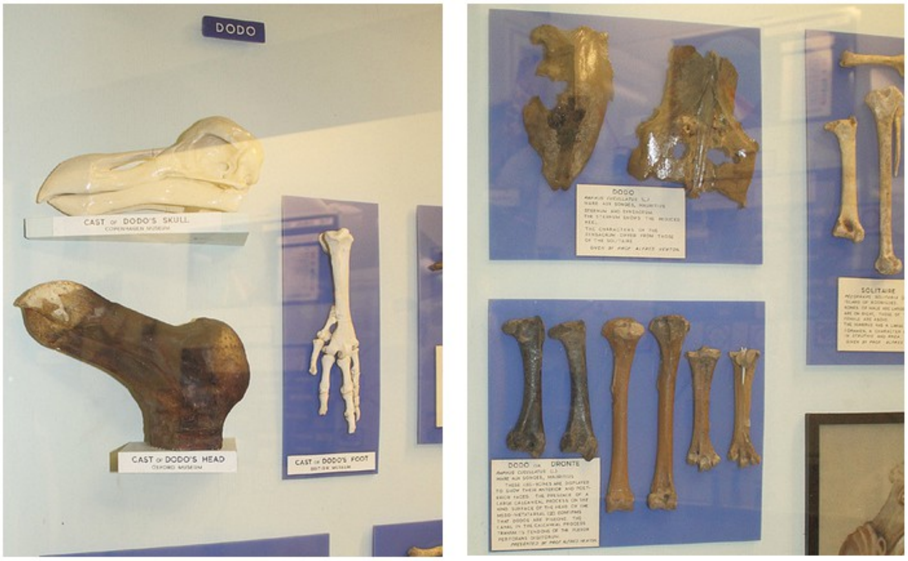
BPM_2073 cast of the Copenhagen skull

BPM_2074 coloured cast of the Tradescant head

BPM_2075 articulated cast of the Tradescant foot. Label reads: "CAST OF DODO'S FOOT BRITISH MUSEUM".

BPM_2076 sternum (damaged ventrally, lacking portion of right side), pelvis (lacking caudal extremity, damage to postacetabular ilia) (with description), Mare aux Songes. Donated by Alfred Newton.

BPM_2077 six leg bones (with description): left and right femora (black), left and right tibiotarsi, left and right tarsometatarsi, Mare aux Songes. Presented by Alfred Newton.

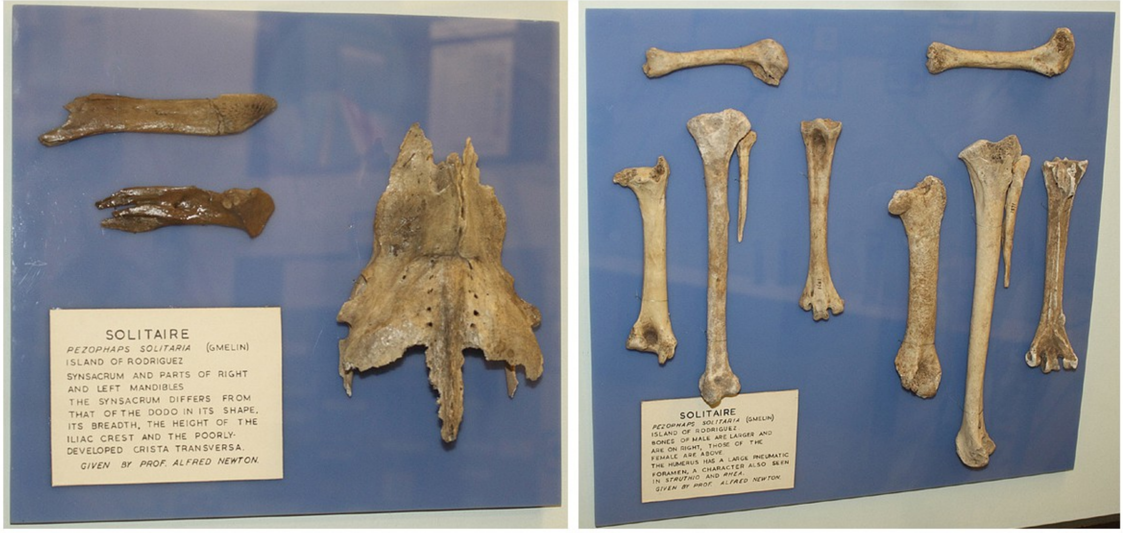


The Bell-Pettigrew Museum dodo display (© Rupert Nye, 17th July 2012).

Pezophaps solitaria

BPM_1988 bones (with description): ♀: left humerus, right femur, left tibiotarsus, fibula, right tarsometatarsus; ♂: left humerus, femur, left tibiotarsus, fibula, left tarsometatarsus

BPM_1989 bones (with description): mandibular symphysis and distal portion of ramus (brown), proximal portion of mandibular ramus (brown),[85] pelvis (lacking cranial extremity and caudal end). Donated by Alfred Newton.



SOLITAIRE
PEZOPHAPS SOLITARIA (GMELIN)
ISLAND OF RODRIGUEZ
SYNSACRUM AND PARTS OF RIGHT AND LEFT MANDIBLES
THE SYNSACRUM DIFFERS FROM THAT OF THE DODO IN ITS SHAPE, ITS BREADTH, THE HEIGHT OF THE ILIAC CREST AND THE POORLY-DEVELOPED CRISTA TRANSVERSA.
GIVEN BY PROF. ALFRED NEWTON.

SOLITAIRE
PEZOPHAPS SOLITARIA (GMELIN)
ISLAND OF RODRIGUEZ.
BONES OF MALE ARE LARGER AND ARE ON RIGHT, THOSE OF THE FEMALE ARE ABOVE.
THE HUMERUS HAS A LARGE PNEUMATIC FORAMEN, A CHARACTER ALSO SEEN IN *STRUTHIO* AND *RHEA*.
GIVEN BY PROF. ALFRED NEWTON.

The Bell-Pettigrew Museum solitaire display (© Rupert Nye, 17th July 2012).

The above specimens are currently on display and, with the exception of BPM_2073 and BPM_2074, are mounted on blue boards. Alongside the above is displayed a painting of the dodo, apparently based on Savery-OUM.

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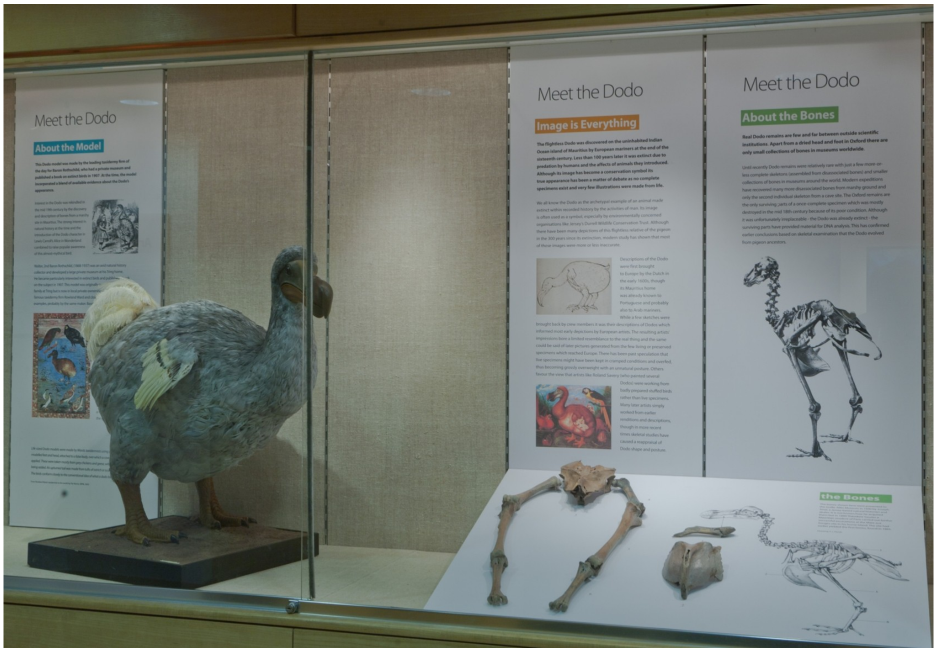
[85] The two mandibular specimens appear to be dodo rather than solitaire (pers. obs. from photograph).

Guernsey Museum, Guernsey

Guernsey Museum & Art Gallery, Candie Gardens, St. Peter Port, Guernsey GY1 1UG

Raphus cucullatus
GUEMG: A1759 pelvis (damaged proximally, lacks distal end)
GUEMG: A1760 right tibiotarsus (bears "Tibia Dodo" on shaft)
GUEMG: A1761 left tibiotarsus (damaged proximally)
GUEMG: A1762 right tarsometatarsus
GUEMG: A1763 left tarsometatarsus
GUEMG: A1764 left femur
GUEMG: A1765 right femur
GUEMG: A1766 mandibular symphysis and distal portion of right ramus (with paper label "DODO.")
GUEMG: A1767 sternum (bears annotation "Sternum of Dodo")

The bones originate from the former Guille-Allès museum (Alan Howell, pers. comm., 8th May 2008). The bones were gifted to the Guille-Allès museum in 1890 by I. Sinel (this is almost certainly a mistranscription for J. Sinel,[86] father and son naturalists and preparators who provided specimens to the Guille-Allès museum in the late nineteenth and early twentieth centuries: Alan Howell, pers. comm., 8th May 2008).[87] Some of the dodo bones were on display in the "Victorian Collectors" section (*ibid*.). The bones were exhibited along with a reconstruction of the dodo (see Reconstructions of the Dodo) from 29th January 2011, although have now been removed from display (Alan Howell, pers. comm., 18th August 2011). The bones are almost certainly of Mare aux Songes provenance (colour, presevation and taphonomic features, such as the dark marks caused by decaying plant material, agree; pers. obs.).



Guernsey Museum dodo bones (© Alan Howell, 2011).

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[86] Joseph Sinel (1844-1929). Naturalist and archaeologist. Curator of the museum of the Société Jersiaise Museum from 1907.

[87] The inventory of the Guille-Allès Museum was compiled in the 1970s and later typed up, leading to potential trascription errors (Alan Howell, pers. comm., 13th January 2011).

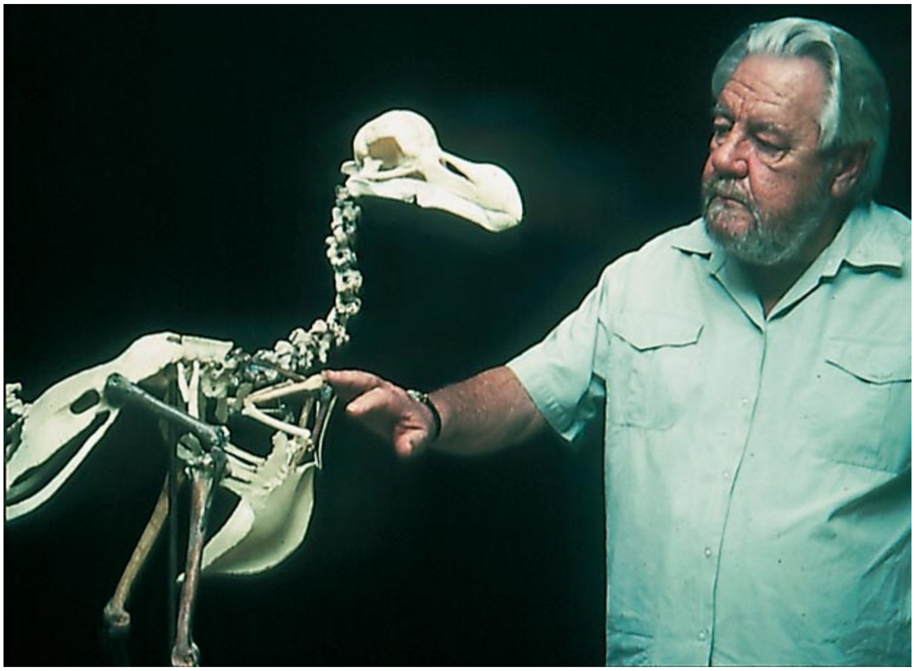
At the monthly meeting of the Guernsey Society of Natural History and Local Research, held on 21st May 1901, "Mr. [Adolphus] Collenette [88] exhibited some bones of the Dodo, which are in the museum. An interesting conversation followed on the distribution and extinction of species" (Anon. 1902, p.55). These are assumed to be the same as those listed above (Charles David, pers. comm., 28th August 2010).

Durrell Wildlife Conservation Trust, Jersey

Durrell Wildlife Conservation Trust (Jersey Wildlife Preservation Trust), Les Augrès Manor, La Profonde
Rue, Trinity, Jersey, Channel Islands JE3 5BP

Raphus cucullatus

Skeleton on permanent (or long-term) loan from Mauritius. The Jersey skeleton is made up of bones from Mare aux Songes (including cervical vertebrae, pectoral elements, femora, tibiotarsi, tarsometarsi) and casts (including skull, notarium, eighteenth vertebra, caudal vertebrae, ribs, sternum and pelvis) and was composed by the National Museums of Scotland around 1993 ("around eighteen years ago": Barker 2011) on behalf of the Durrell Wildlife Conservation Trust (*ibid*.). Andrew Kitchener was in charge of the assembly and Peter Summers, a taxidermist, created moulds of original bones to make polyester resin replicas. It was formerly on display at the Education building in the Princess Royal Pavillion, but was moved temporarily to mainland Britain (transferral arranged by Carl Jones) for research by Nick Bibby in the making of his bronze dodo sculpture (Koenig *et al*. 2004; Glyn Young, pers. comm., 26th January 2002, 21st March 2011). According to a recent news report, this was in the late 1990s (Anon. 2011). The skeleton is currently publically exhibited at Durrell Wildlife Park in the new visitor centre, which opened in April 2011 (*ibid*.), but was on temporary display from 27th March to 16th April 2012 at the de Gruchy department store in Jersey (http://www.durrell.org/Latest/News/Rare-Dodo-Takes-Centre-Stage-at-de-Gruchy-Department-Store-in-Jersey-/ accessed 29 March 2012). See the Mauritius Institute, below, for further details. Figured: Koenig *et al*. (2004); http://www.bbc.co.uk/news/world-europe-jersey-17523199 (accessed 29 March 2012).



Gerald Durrell with the dodo skeleton (© Durrell Wildlife Conservation Trust).

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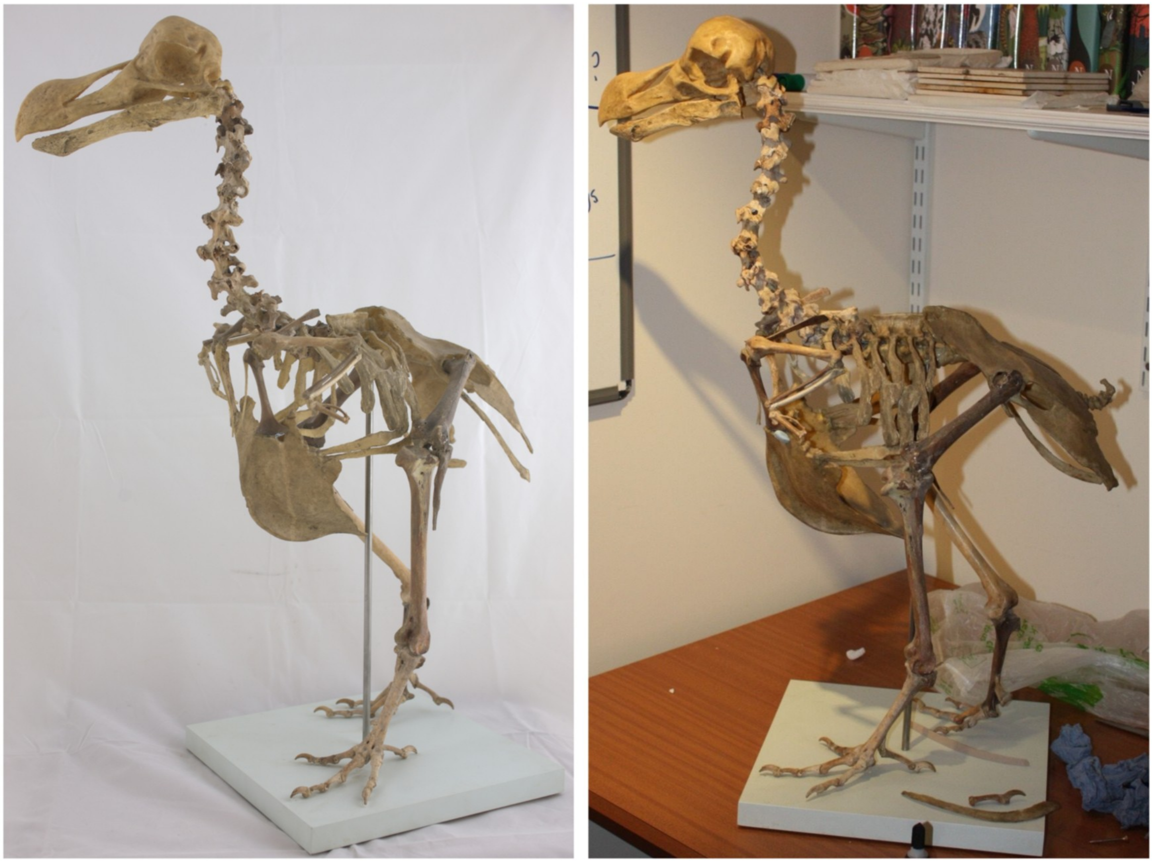
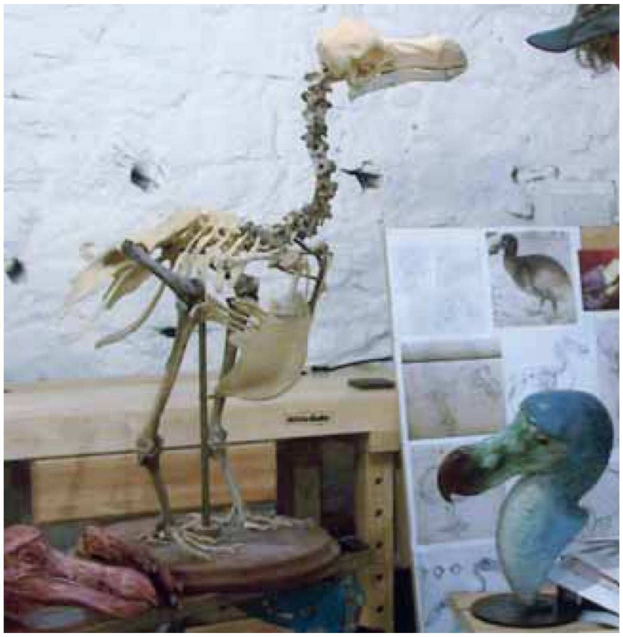
[88] Adolphus Collenette (1841-1922). Honorary curator of the Guille-Allès Museum, Guernsey. He was closely linked with the Guernsey Society of Natural History and Local Research, which met in rooms next to the museum (Alan Howell, pers. comm., 19th August 2010).



Durrell Wildlife Conservation Trust dodo skeleton (© Colin Stevenson, Durrell Wildlife Conservation Trust).



Durrell Wildlife Conservation Trust dodo skeleton (© Gallery Pangolin).

Natural History Museum, Dublin

Natural History Museum, Merrion Street, Dublin 2, Republic of Ireland. Geological Collection.

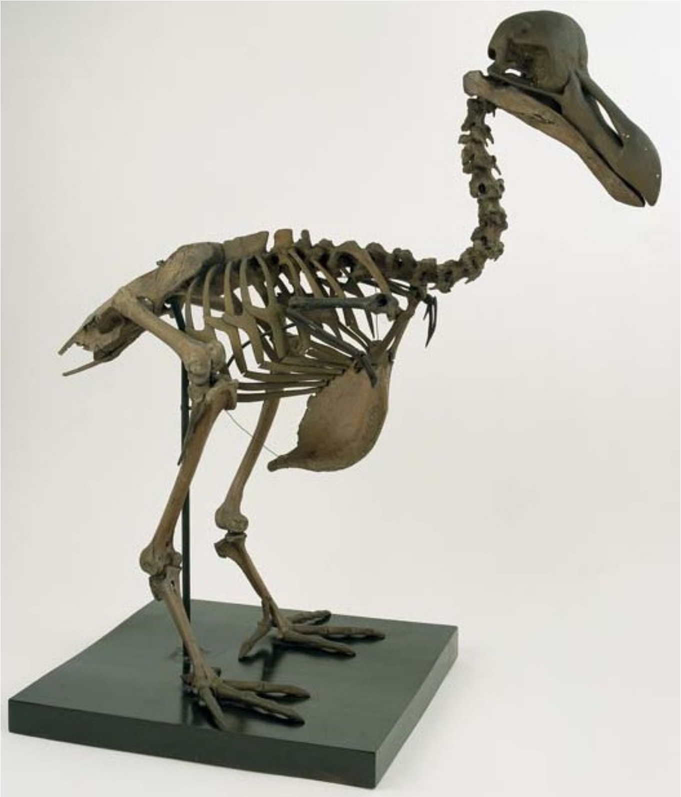
Lydekker (1891) catalogued the dodo and solitaire specimens in the Science and Art Museum, Dublin, but only listed those specimens on display and not those in storage (David Gonzalez, pers. comm., 9th September 2010). The specimens were transferred to the Natural History Museum's collections in 1877 (http://thehedgehogknows.wordpress.com/2012/10/08/1877-dodo-raphus-cucullatus/ [accessed 24 January 2013]).

Raphus cucullatus

Information from Nigel T. Monaghan (pers. comm., 19th August 2010), unless otherwise stated.

NMING F21700:

F21700/1 mounted partial skeleton on display, with real bones supplemented by casts or models. The skeleton is a composite, from different sources, most unknown. Label states that it was composed of material "from marshes in the island of Mauritius" (P. J. O'Sullivan, pers. comm., 15th January 2001). It was acquired by the Royal Dublin Society and exhibited in their museum. In the Annual Report of the Royal Dublin Society for the year 1872, it was noted that: "A skeleton of that rare extinct bird the Dodo, *Didus ineptus*, recently acquired from the diluvial deposits of the Island of Mauritius, has been set up" (Steele 1873, p.541). Ferdinand Roemer, who visited the Museum of the Royal Dublin Society in August 1876, noted that the "specimen of *Didus ineptus*, complete all but the skull, which has been artificially supplied, is likewise exceedingly interesting" (Roemer 1878, p.55). The skeleton was recently exhibited on the second floor balcony of the Natural History Museum with other pigeon specimens, but is no longer on public display. Recently it was laser-scanned to create a 3-D image. The skull is a cast of the Copenhagen skull and other bones are modelled in plaster. The pedal phalanges are plaster or wood (Nigel Monaghan, pers. comm., 23rd August 2012).



Dublin dodo skeleton (© Natural History Museum, Dublin).

F21700/2 plaster cast of the Copenhagen skull. Gift of Japetus Steenstrup of the University Museum, Copenhagen, on 25th April 1871. Specimen *b* of Lydekker (1891).

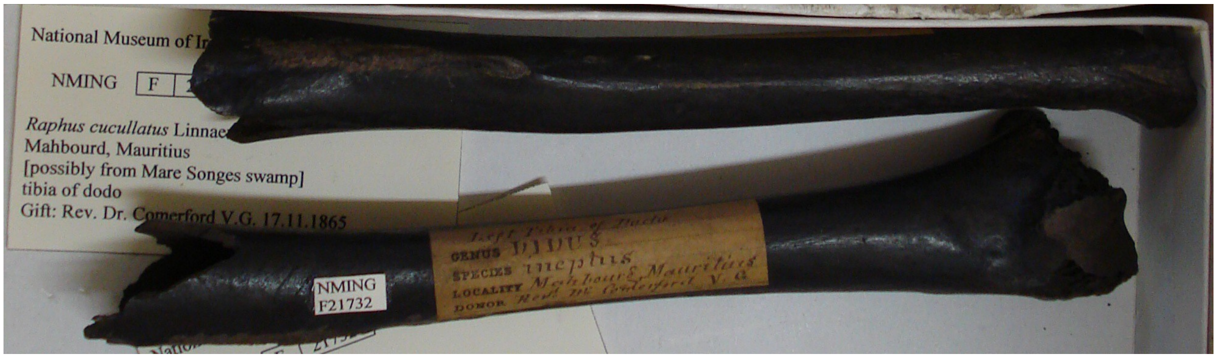
F21700/3-6 three tibiotarsi. Specimens *d* of Lydekker (1891). Not seen 1st April 2000, located 4th October 2004.

F21700/7 rostrum. Specimen *c* of Lydekker (1891).

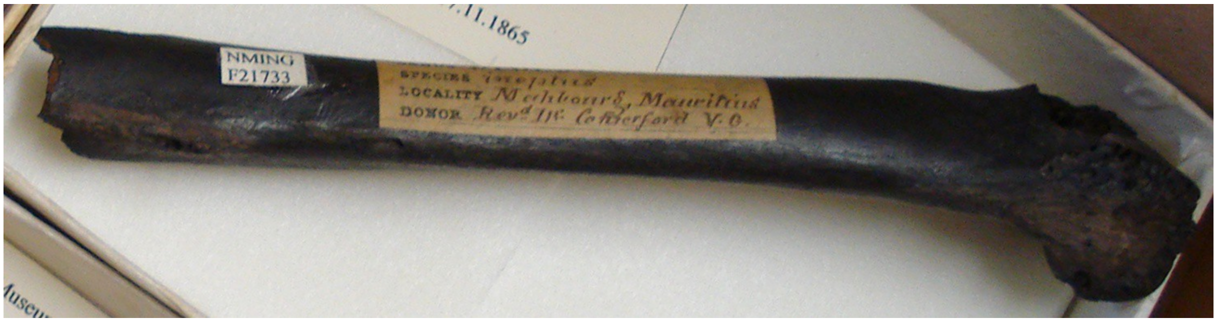
F21731-F21734 four tibiotarsi, comprising: left tibiotarsus (F21732: damaged distally, lacking proximal end), ?right tibiotarsus (F21733), left tibiotarsus (lacking proximal and distal ends) and left tibiotarsus broken in three (F21734). The labels attached to the tibiotarsi read:

Left Tibia of Dodo
GENUS DIDUS
SPECIES ineptus
LOCALITY Mahbourg [*sic*[89]] ,Mauritius
DONOR *Rev^{d}. D^{r}. Comerford* V G

Figured: http://thehedgehogknows.wordpress.com/2012/10/08/1877-dodo-raphus-cucullatus/ [accessed 24 January 2013]



Tibiotarsi (*bottom*: F21732) (© David Gonzalez).



Tibiotarsus (F21733) (© David Gonzalez).

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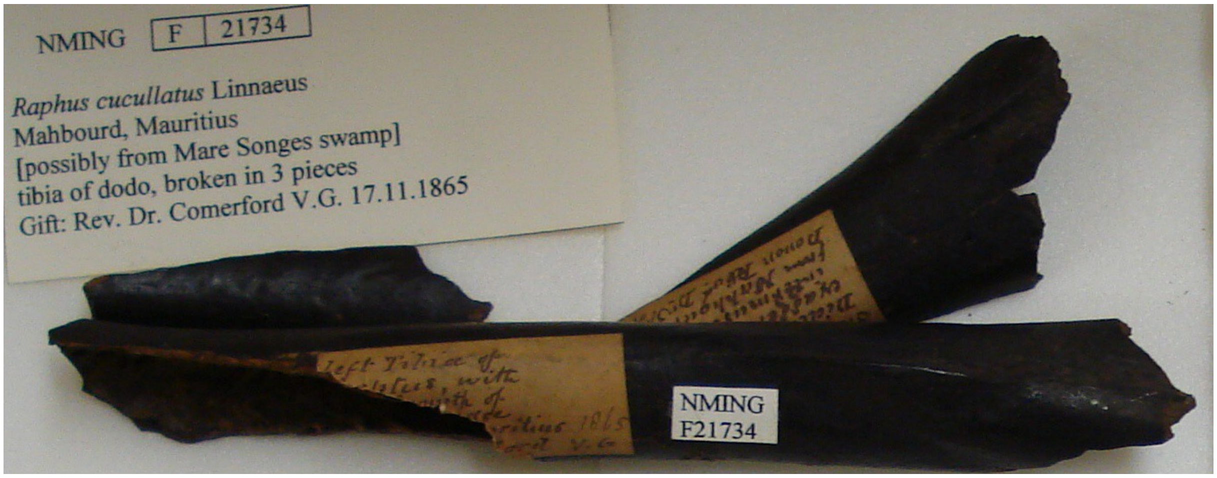
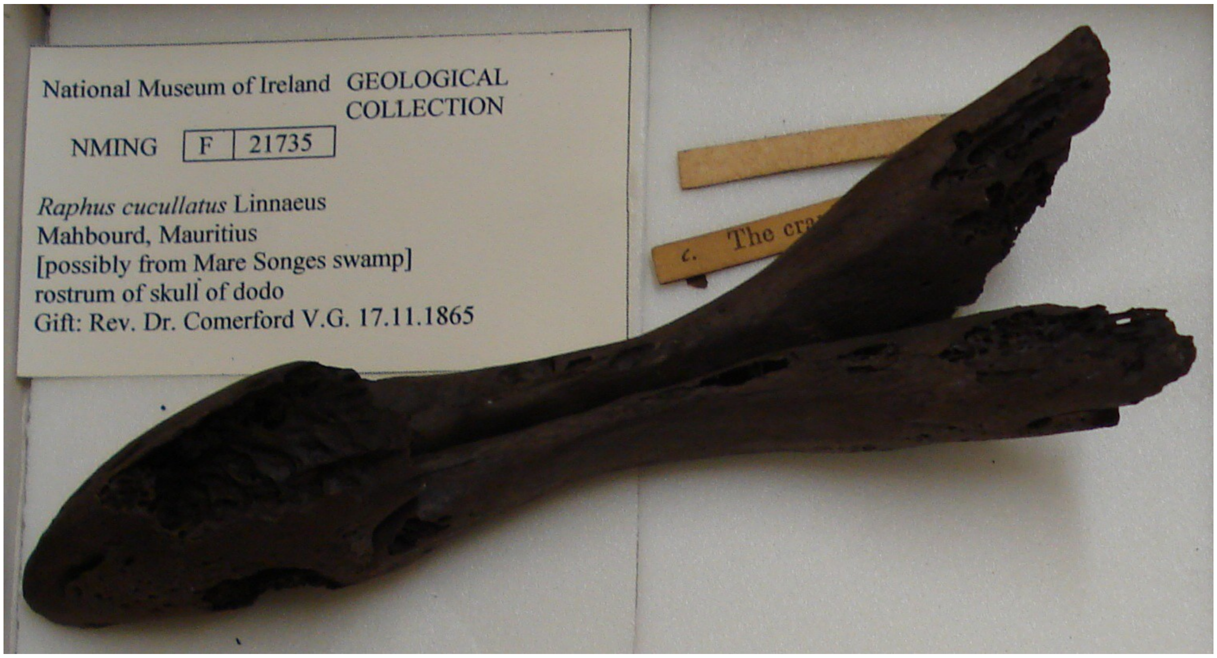
[89] Presumably an error for Mahébourg.


NMING F 21734
Raphus cucullatus Linnaeus
Mahbourd, Mauritius
[possibly from Mare Songes swamp]
tibia of dodo, broken in 3 pieces
Gift: Rev. Dr. Comerford V.G. 17.11.1865
NMING
F21734

Left tibiotarsus (F21734) (© David Gonzalez).

F21735 rostrum (lacking dorsal nasal bar). Accompanying labels reads: "*c*. The cranial rostrum." (see Lydekker 1891b, p.41 – below). Figured: http://thehedgehogknows.wordpress.com/2012/09/07/1877-raphus-cucullatus/ [accessed 24 January 2013]

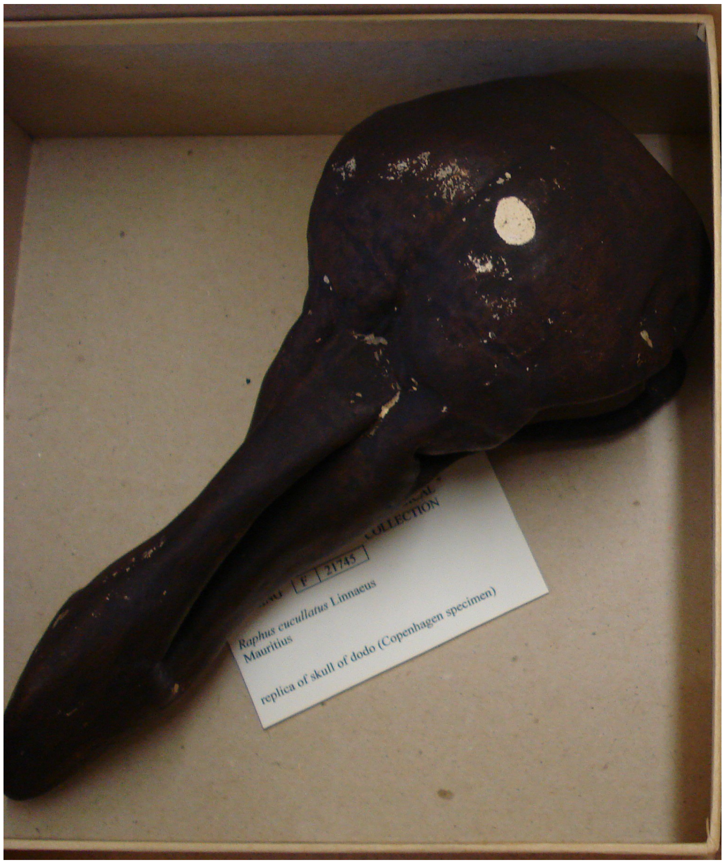

National Museum of Ireland GEOLOGICAL COLLECTION
NMING F 21735
Raphus cucullatus Linnaeus
Mahbourd, Mauritius
[possibly from Mare Songes swamp]
rostrum of skull of dodo
Gift: Rev. Dr. Comerford V.G. 17.11.1865
c. The cra

Rostrum (F21735) (© David Gonzalez).

F21736-43 three ribs (F21736-F21738), middle portion of left mandibular ramus (F21739), three mid cervical vertebrae (F21740-F21742) and left scapula (F21743)

F21744 brown-coloured plaster cast of mandible, broken and repaired. Probably from the Copenhagen skull (see F21745)

F21745 brown-coloured plaster cast of the Copenhagen skull, broken and repaired. See also F21744


COLLECTION
F
21745
Raphus cucullatus Linnaeus
Mauritius
replica of skull of dodo (Copenhagen specimen)

Cast of the Copenhagen skull (F21745) (© David Gonzalez).

NMINH:2006.12.1703 plaster cast of the Tradescant head

NMINH:2008.73.457 uncoloured plaster cast of the BM foot (damaged, digit III broken off). However, under the list of donors to the Dublin University Museum and Herbarium from May 1844 to August 1852, it is mentioned that Professor Melville (presumably Alexander Gordon Melville) donated "Casts of the bones of the foot of the dodo" (Ball 1853, p.164) – the reference to bones of the foot suggests a cast of the Tradescant foot, not the BM one.

F21700/3-6, F21700/7 and another undetermined bone were donated to the Museum of the Royal Dublin Society by Pierce Michael Comerford V.G. (Vicar-General) of Mauritius,[90] per Patrick O'Meara[91] Esq., Mauritius, on 17th November 1865.[92] F21731-F21743 were a gift of Pierce Michael Comerford, 17th November 1865, are are labelled as from 'Mahbourd', Mauritius.

The National Museum of Ireland's dodo bones were passed on to that institution from the Royal Dublin Society. The locality 'Mahbourd' is not given in the register entry of the Royal Dublin Society.

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[90] Pierce Michael Comerford (1818-1905). He retired to Ireland in 1876 (http://comerfordfamily.blogspot.ie/2009/06/comerford-profiles-36-some-comerford.html accessed 28 August 2012). However, he is named as Peter Michael Comerford in the The Mauritius Almanac, and Civil Service Register, for 1864 (*London: Printed by Harrison and Sons, St. Martin's Lane*).

[91] Patrick O'Meara, member of the Royal Dublin Society and later its Vice President (Natasha Serne, pers. comm., 22nd August 2012).

[92] Or on 27th November 1865 (Anthony Cheke, pers. comm., 3rd December 2009, *ex* pers. comm. from Peter Wyse Jackson to Anthony Cheke, 15th November 1985).

At the meeting of the Natural History Society of Dublin held on 1st March 1866, Edward Perceval Wright[93] exhibited some bones of the dodo:

> Dr. E. Perceval Wright, F. L. S., said, that having been entrusted by Dr. Charles Henry Leet, of the 13th Light Infantry,[94] with some bones of that very rare and most interesting bird, the Dodo, he had asked and obtained permission from Dr. Leet to exhibit these remains at a meeting of this Society; and he regretted that Dr. Leet's health did not permit him to be present at the meeting this evening, to give those details in reference to their discovery which his local knowledge of the Mauritius would have enabled him to have done. [...] [I]n the course of last year Mr. Clarke, living at Mahebourg, found, in draining for agricultural purposes, in a small lake, called the "Mare aux Songes," a large number of the true Dodo bones, which have since arrived in London, and which include almost every portion of the bird's skeleton. As the most perfect series has been placed in Professor Owen's hands, we may very soon expect an elaborate memoir thereof from this distinguished comparative anatomist. The bones that Dr. Wright exhibited were from the same lake in the Mauritius, and consist of the larger half of the pelvis, which was very light, weighing only 1½ oz., though the whole of the air cells were filled with dry mud; of a right femur, of two right tibiæ, and a left metatarsus; and, through the kindness of his friend, Dr. Carte, he was also enabled to exhibit more or less perfect specimens of three left tibiæ and a small fragment of the left lower jaw. Dr. Wright briefly compared the bones that were unknown to Dr. Melville with those of one or two of the Ground Pigeons; and said that he had little doubt but that Professor Owen would refer the Dodo to a family having certain affinities with, but abundantly distinct from, that of the Columbidæ of the order Columbæ, like Apterygidæ among the Struthiones. The bones now discovered proved, though it should be borne in mind that this had been abundantly proved before, the accuracy of Professor Melville's judgment in this matter. The pelvis was unsymmetrical, the left side being somewhat larger than the right, but this was probably owing to unequal compression in the mud.
>
> The Rev. Professor Haughton made some remarks on the interest of Dr. Wright's communication, and contrasted the pelvis of the Dodo, with that of several species of cursorial and rasorial birds which he had dissected.
>
> Mr. J. J. Lalor moved, and Mr. R. J. Montgomery seconded, a vote of thanks to Dr. Leet, for his kindness in intrusting the Dodo bones to Dr. Wright for exhibition at this meeting of the Society (Wright 1866, pp.32-33).

Charles Henry Leet (1836-1907). Staff Assistant Surgeon, was son of Charles Henry Leet, M.D. He married Elizabeth, daughter of Vincent W. Ryan, Bishop of Mauritius, at Pailles, Mauritius, on 8th September 1864 (*The Gentleman's Magazine*, 1864, p.647). He was joined to the 13th Fusiliers on 21st November 1865 and the Royal Engineers on 9th March 1867.

Samuel Haughton (1821-1897) was Professor of Geology at Trinity College Dublin and a medical doctor. "J. J. Lalor" was John J. Lalor and "R. J. Montgomery" was Robert John Montgomery.

Wright later purchased a series of dodo bones at the Stevens Sale of 13th March 1866 for £13 (see below).[95]

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[93] Edward Perceval Wright (1834-1910). Irish surgeon and botanist, with interests in geology and vertebrate palaeontology. Lecturer in zoology, Trinity College, Dublin 1858-1868 (Trinity College, Dublin has a zoology and a geology museum). Corresponded with Thomas Henry Huxley in the 1860s (Nigel Monaghan, pers. comm., 10th September 2010). He was a member of the BAAS and visited the Seychelles in 1867 for six months.

[94] See footnote 4.

[95] Wright had previously written to William Henry Flower (8th February 1866, RCS Museum Letter Book Series 2 (1868-1906) Volume 1, p.79) enquiring whether the latter could advise as to a reasonable price for dodo bones, as Wright had recently been offered various bones and was unsure what to offer (Philippa Mole, pers. comm., 22nd June

These comprised: “Sternum – R. coracoid – R. & L. condyle of lower jaw – gonys & L. ramus of ditto – pelvis – R. & L. tarso-metatarsus – R. & L. femur – R. & L. tibia – R. scapula – L. fibula – 5 cervical vertebræ” (Stevens 1866c). In the 1860s Wright was corresponding with Thomas Henry Huxley and, according to Nigel Monaghan (pers. comm., 10th September 2010), it “is possible Wright would have visited Huxley in London to bid for the bones, or get Huxley to bid on his behalf at Stevens”. This could be the source for the main elements of the dodo skeleton F21700/1.

Under the Donations to the Natural History Museum of the Royal Dublin Society, signed by the Director, Alexander Carte and dated August 1866, is the following: “Rev. Dr. Comerford, V.G., *Mauritius*, per P. O’Meara, Esq., M.R.D.S., *Aden:*–3 Leg Bones (*Tibiæ*), and a small portion of the Lower Mandible of the Dodo (*Didus ineptus*), from Mahebourg, Mauritius” (Carte 1870, p.59).

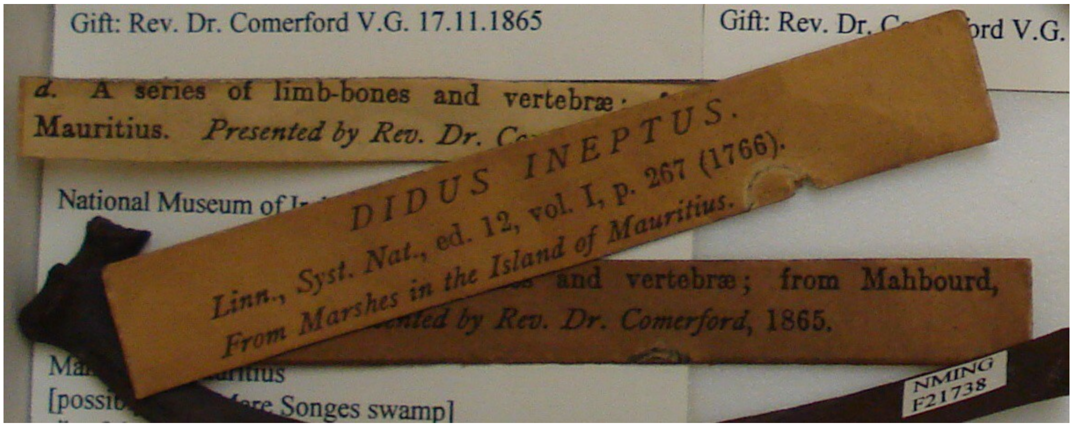
Similarly, under the Donations to the Natural History Museum of the Royal Dublin Society, signed by the Director, Alexander Carte and dated 30th December 1871, is the following: “Herr Professor Dr. Japetus Steenstrup, *University*, *Kobenjavn*, *Denmark:*–A plaster cast of the skull of the Dodo (*Didus ineptus*)” (Carte 1875, p.156).

In a letter to Carte from the ornithologist Alexander Goodman More,[96] dated 5th January 1871, the latter wrote:

> Yesterday I saw Professor Newton, and I hope that he will be able to help you in the matter of the Dodo bones. It is quite hopeless to get a skull, but there is a good cast of it to be obtained from Copenhagen, and Newton can supply at any rate some of the missing vertebrae (quoted in Moffat 1898, p.234).

In his catalogue, Lydekker (1891b, p.41) listed:

> FAMILY DIDIDÆ.
> *DIDUS INEPTUS.*
> *Linn.*, *Syst. Nat.*, ed. 12, vol. I, p. 267 (1766).
> *From Marshes in the Island of Mauritius*.
> *a*. The skeleton, partly restored, and made up from the bones of more than one individual.
> *b*. Cast of the skull.
> *c*. The cranial rostrum.
> *d*. A series of limb-bones and vertebræ; from Mahbourd, Mauritius. *Presented by Rev. Dr. Comerford*, 1865.


Gift: Rev. Dr. Comerford V.G. 17.11.1865
Gift: Rev. Dr. C ord V.G.
d. A series of limb-bones and vertebræ
Mauritius. Presented by Rev. Dr. C
National Museum of I
DIDUS INEPTUS.
Linn., Syst. Nat., ed. 12, vol. I, p. 267 (1766).
From Marshes in the Island of Mauritius.
and vertebræ; from Mahbourd,
ented by Rev. Dr. Comerford, 1865.
Ma uritius
[possib re Songes swamp]
NMING
F21738

Labels accompanying the dodo specimens (© David Gonzalez).

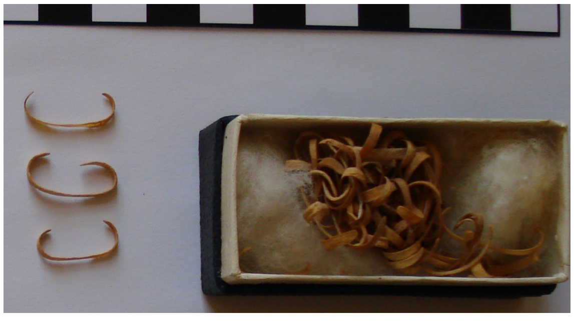
2012).

[96] Curator of the Natural History Museum, Dublin, 1881-1887, following Carte’s death in 1881.

Pezophaps solitaria
List of solitaire specimens from David Gonzalez (pers. comm., 15th September 2010, 23rd September 2010). Data for NMING F21701 from from Nigel Monaghan (pers. comm., 30th August 2010), unless otherwise stated.

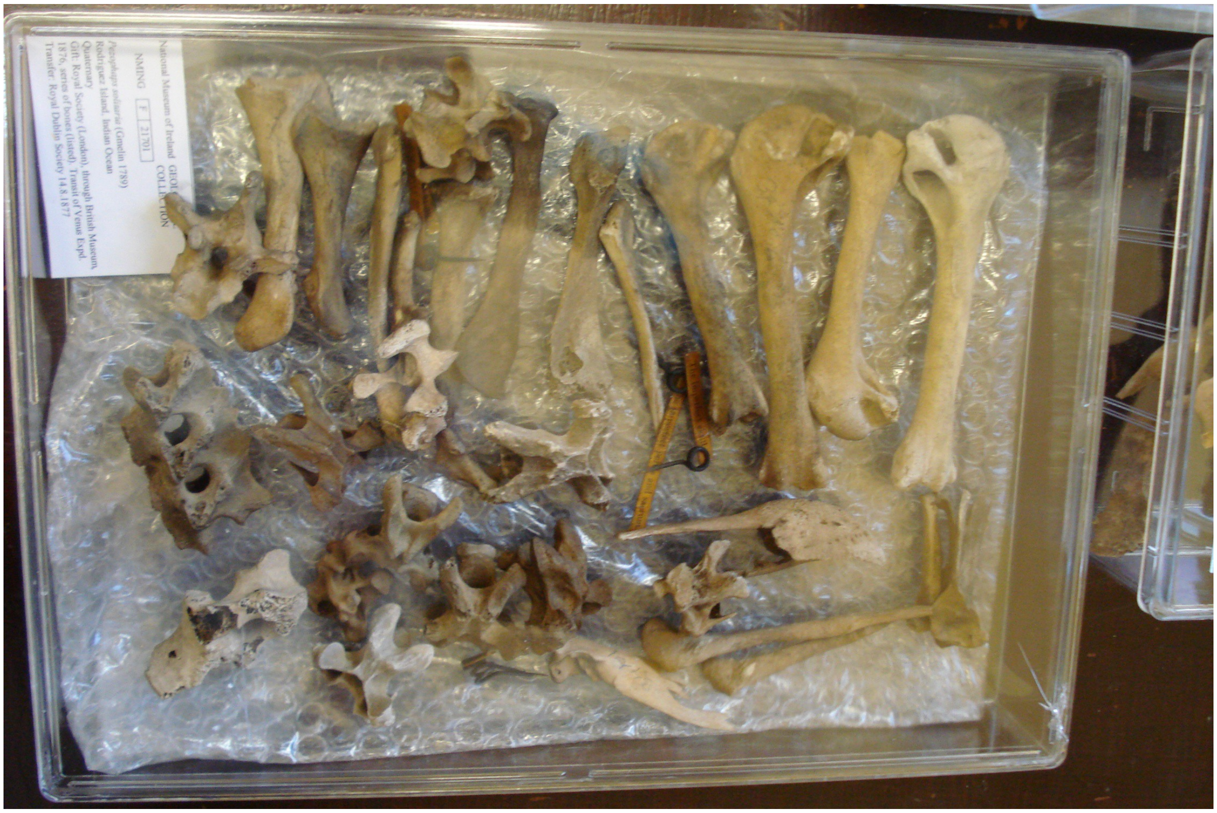
NMING F21701 partial mounted skeleton on display, composed of bones of several individuals. The accompanying label reads: "Presented to the Museum in 1876 by the British Museum ex Transit of Venus Expedition" acting on behalf of the Royal Society (P. J. O'Sullivan, pers. comm., 15th January 2001). The bones were donated to the Museum of the Royal Dublin Society by the Royal Society of London through the Trustees of the British Museum on 2nd March 1876. All the bones derive from the Transit of Venus Expedition. The bones of the skeleton comprise:
NMING:F21701/1 cranium
NMING:F21701/2, NMING:F21701/3 two quadrates
NMING:F21701/4 beak
NMING:F21701/5 dentary
NMING:F21701/6, NMING:F21701/7 two caudal portions of mandible
NMING:F21701/8-NMING:F21701/23 sixteen vertebrae
NMING:F21701/24 pelvis
NMING:F21701/25, NMING:F21701/26 two pubes
NMING:F21701/27-NMING:F21701/39 thirteen ribs
NMING:F21701/40, NMING:F21701/41 two furcula fragments
NMING:F21701/42, NMING:F21701/43 two scapulae
NMING:F21701/44, NMING:F21701/45 two coracoids
NMING:F21701/46 sternum
NMING:F21701/47, NMING:F21701/48 two humeri
NMING:F21701/49, NMING:F21701/50 two radii
NMING:F21701/51, NMING:F21701/52 two ulnae
NMING:F21701/53, NMING:F21701/54 two carpometacarpi
NMING:F21701/55, NMING:F21701/56 two femora
NMING:F21701/57, NMING:F21701/58 two tibiotarsi
NMING:F21701/59, NMING:F21701/60 two fibulae
NMING:F21701/61, NMING:F21701/62 two tarsometatarsi
NMING:F21701/63, NMING:F21701/64 two first metatarsals
NMING:F21701/65-NMING:F21701/76 twelve pedal phalanges

Storage building:
NMING:F21701/77, NMING:F21701/78 two crania
NMING:F21701/79, NMING:F21701/80 two quadrates
NMING:F21701/81-NMING:F21701/83 three premaxillae
NMING:F21701/84 one nasal
NMING:F21701/85-NMING:F21701/88 four palatines
NMING:F21701/89, NMING:F21701/90 two dentaries
NMING:F21701/91-NMING:F21701/96 six caudal portions of mandible
NMING:F21701/97 approximately 40 tracheal rings (in box)

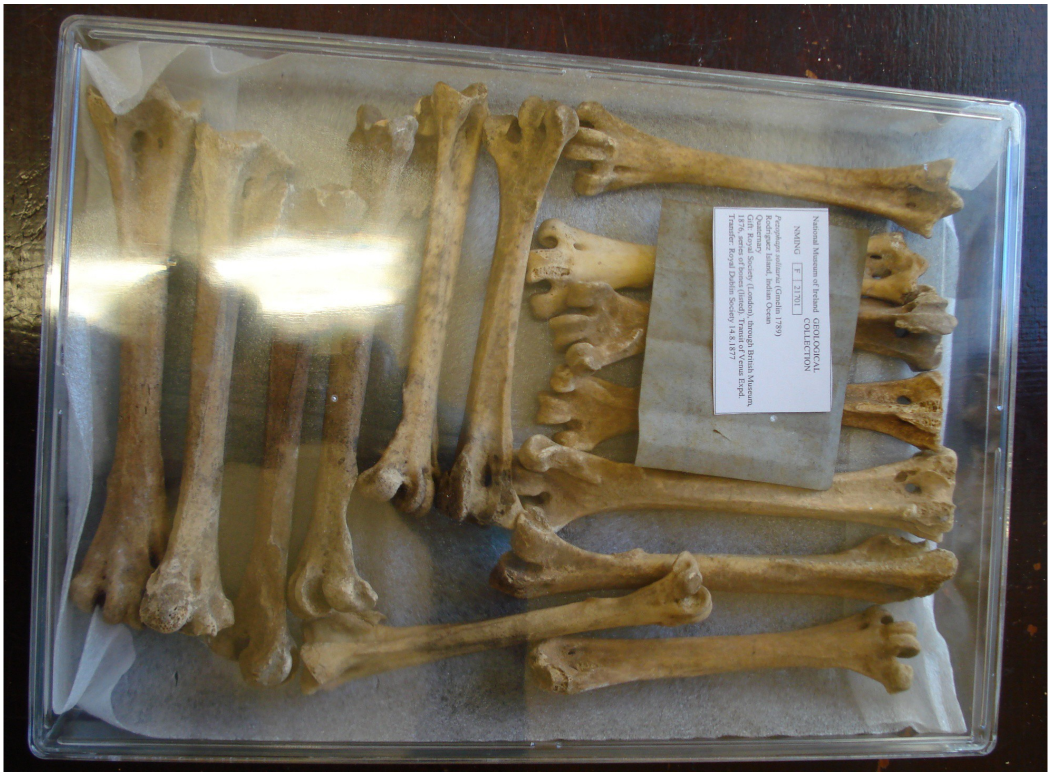


Tracheal rings (F21701/97) (© David Gonzalez).

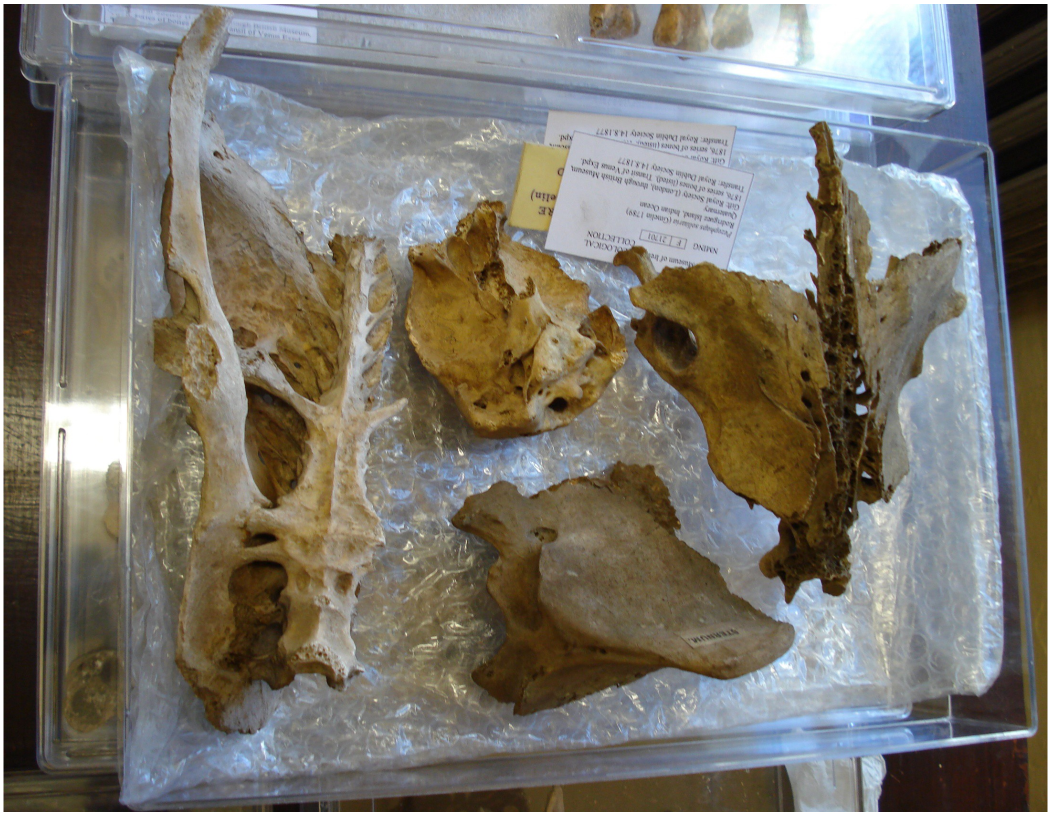
NMING:F21701/98-NMING:F21701/133 36 vertebrae
NMING:F21701/134-NMING:F21701/137 four pelves
NMING:F21701/138 pubis
NMING:F21701/139-NMING:F21701/159 21 ribs
NMING:F21701/160-MING:F21701/161 two furculae
NMING:F21701/162-NMING:F21701/167 six scapulae
NMING:F21701/168-NMING:F21701/172 five coracoids
NMING:F21701/173 coracoid. Apparently missing
NMING:F21701/174 sternum
NMING:F21701/175-NMING:F21701/186 twelve humeri
NMING:F21701/187-NMING:F21701/190 four radii
NMING:F21701/191 ulna
NMING:F21701/192 ulna. Apparently missing
NMING:F21701/193-NMING:F21701/198 six carpometacarpi
NMING:F21701/199-NMING:F21701/220 22 femora
NMING:F21701/221-NMING:F21701/238 eighteen tibiotarsi
NMING:F21701/239 tibiotarsus. Previously misidentified as a tarsometatarsus
NMING:F21701/240-NMING:F21701/249 ten fibulae
NMING:F21701/250-NMING:F21701/266 seventeen tarsometatarsi
NMING:F21701/267-NMING:F21701/270 four first metatarsals
NMING:F21701/271-NMING:F21701/288 eighteen pedal phalanges
N.b. 'beak' here refers to the premaxillae, maxillae, nasals and palatines, but not the jugals (David Gonzalez, pers. comm., 23rd September 2010).


National Museum of Ireland GEOL
COLLECTION
NMING F 21701
Pezophaps solitaria (Gmelin 1789)
Rodriguez Island, Indian Ocean
Quaternary
Gift: Royal Society (London), through British Museum,
1876, series of bones (listed). Transit of Venus Expd.
Transfer: Royal Dublin Society 14.8.1877

Solitaire specimens (F21701) (© David Gonzalez).


National Museum of Ireland GEOLOGICAL COLLECTION
NMING F 21701
Pezophaps solitaria (Gmelin 1789)
Rodriguez Island, Indian Ocean
Quaternary
Gift: Royal Society (London), through British Museum,
1876, series of bones (listed). Transit of Venus Expd.
Transfer: Royal Dublin Society 14.8.1877

Solitaire specimens (F21701) (© David Gonzalez).



Solitaire specimens (F21701) (© David Gonzalez).

Further clarifying the above listing, the total collection of solitaire material (including the bones of the articulated skeleton) includes fourteen sternal ribs, four pairs of scapulae, four pairs of coracoids, two furculae (broken) and two sterna (broken) (Nigel Monaghan, 30th August 2010).

The sending of solitaire bones from the collection in London to Dublin and Edinburgh is recorded in the NHM archives, including lists of bones and a receipt from the director at Dublin acknowledging their safe arrival (Nigel Monaghan, pers. comm., 17th April 2012).

DF 202/9, Correspondence and papers relating to distribution of collections and preparation of reports 1875-1876, Royal Society Transit of Venus Expeditions, NHMUK General Library Archives:

NATURAL HISTORY MUSEUM. Royal Dublin Society,
KILDARE-STREET.
April 27th 1876

Dear Sir

I return with many thanks the list of specimens collected in Rodriguez &c., by the Naturalists of the Transit of Venus Expedition, which you have so kindly sent for this museum, and I remain

yours very faithfully
Alexander Carte

Dr. Günther F. R. S. &c &c
British Museum

Solitaire-bones from Rodriguez, sent to
the Museum of Natural History, Dublin
Brit. Mus. 28.2.76. AGünther

+ 3 imperfect skulls
+ 1 complete series of Cervical and Dorsal Vertebræ
+ 36 isolated vertebræ
+ 5 pelves
+ 3 public bones
+ 16 odd ribs
+ 2 sternum (broken)
+ 4 pairs of coracoids
+ 4 " scapulæ
+ 7 " humerus
0 4 " ulna & radius (Not in the box)
(2) 1 " radius
+ 4 " meta-carpals
+ 2 Furculæ (broken)
+ 12 pairs of Femur
+ Rings of Trachea
+ 10 pairs of tibia
+ 6 " fibula
+ 10 " meta-tarsus

30. A selected lot of phalanges.

Alexander Carte M D. F. R. S.
Director N. H. Museum Dublin
March 3rd 1876

NATURAL HISTORY MUSEUM. Royal Dublin Society,
KILDARE-STREET.
May 17th 1876

My dear Sir

I have to acknowledge with many thanks, the receipt of the third consignment of specimens from "Transit of Venus Expedition," and I herewith return your list in receipt of the same.

Yours very truly
Alexander Carte

Dr. Günther
F. R. S. &c &c
British Museum

NATURAL HISTORY MUSEUM. Royal Dublin Society,
KILDARE-STREET.
March 3rd 1876

Dear Sir

I beg to acknowledge the receipt of the bones of the Solitaire from Rodriguez, selected for this museum, from the collections made during the Transit of Venus Expedition.
On comparing the specimens with the list sent, I do not find the four tibiæ and radii mentioned, but there are a few small bones not included in the list.
Thanking you very much, I remain
very truly yours
Alexander Carte

Dr. A. Günter
F. R. S. &c &c &
British Museum

In his catalogue, Lydekker (1891b, pp.41-42) listed:

> *PEZOPHAPS SOLITARIA*.
> Didus solitarius, *Gmelin*, *Syst. Nat.*, vol. I, p. 728 (1788).
> *From Cavern-deposits in the Isle of Rodriquez* [*sic*].
> *a*. The skeleton, made up from the bones of several individuals. *Transit of Venus Expedition*.
> *b*. The imperfect skull. *Transit of Venus Expedition*.
> *c*. The imperfect cranium. „ „
> *d*. The imperfect pelvis and sacrum. „ „

e. Numerous vertebræ. „ „
f. A larger series of limb-bones. „ „

Labels accompanying the above specimens:

National Museum of Ireland GEOLOGICAL
COLLECTION
NMING F 21701

Pezophaps solitaria (Gmelin 1789)
Rodriguez Island, Indian Ocean
Quaternary
Gift: Royal Society (London), through British Museum,
1876, series of bones (listed). Transit of Venus Expd.
Transfer: Royal Dublin Society 14.8.1877

Tibiotarsus with label “Solitaire TIBIA.” (© David Gonzalez).

“2 Furculæ Broken.” (in pencil)
“scapulæ 4 p^{t}” (in pencil)
“5 p^{t} Fibulæ” (in pencil)
“7 Humeri” (in pencil)
‘STERNUM.’ (printed and attached to sternum)
‘FEMUR.’ (printed and attached to femora)
‘TIBIA.’ (printed and attached to tibiotarsi)
‘TARSUS.’ (printed and attached to tarsometatarsi)
One tibiotarsus (left ♀) has ‘34007’ written on it in pencil

Handwritten label: “A LARGE SERIES OF LIMB BONES”

Printed labels:

SOLITAIRE
Pezophaps solitarius (Gm.)
Is. of RODRIGUEZ
Transit of Venus Exp.

RODRIGUEZ SOLITAIRE
Pezophaps solitaria (Gmelin)
(now extinct)
RODRIGUEZ ISLAND

Printed labels attached to pins:

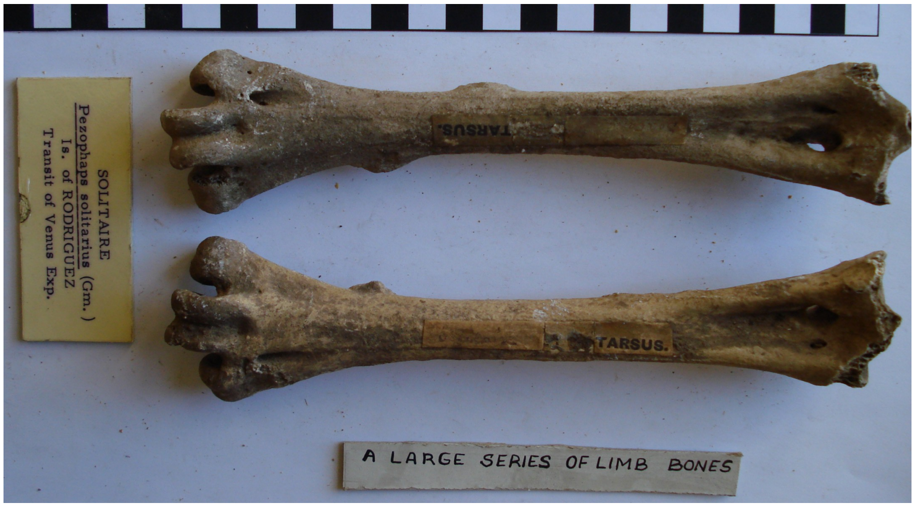
Transit of Venus Expedition.

The imperfect skull

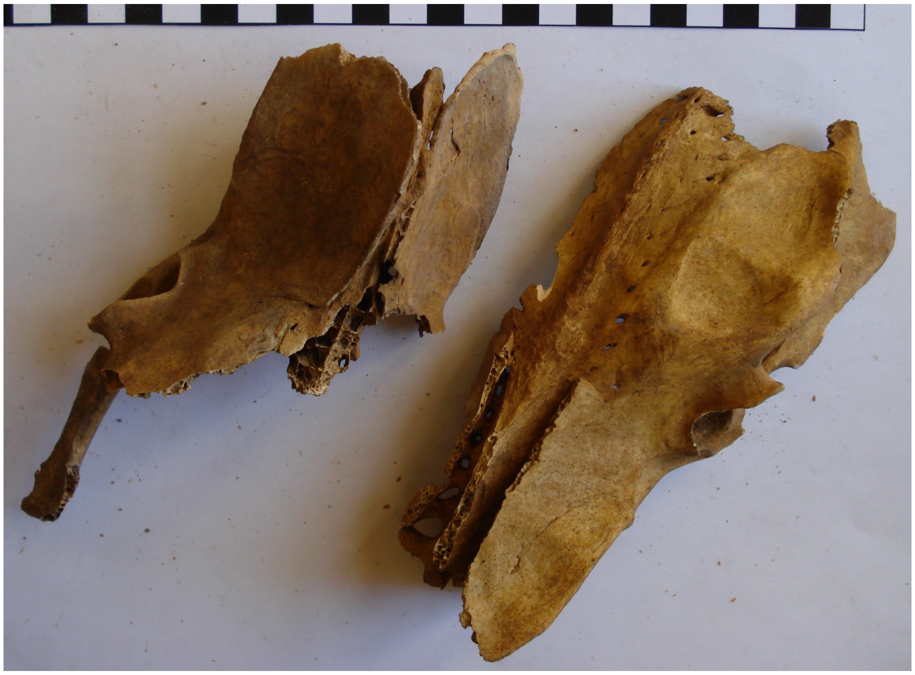
The imperfect sternum

The imperfect pelvis and sacrum.

Numerous vertebræ.



Left and right tarsometatarsi (© David Gonzalez).



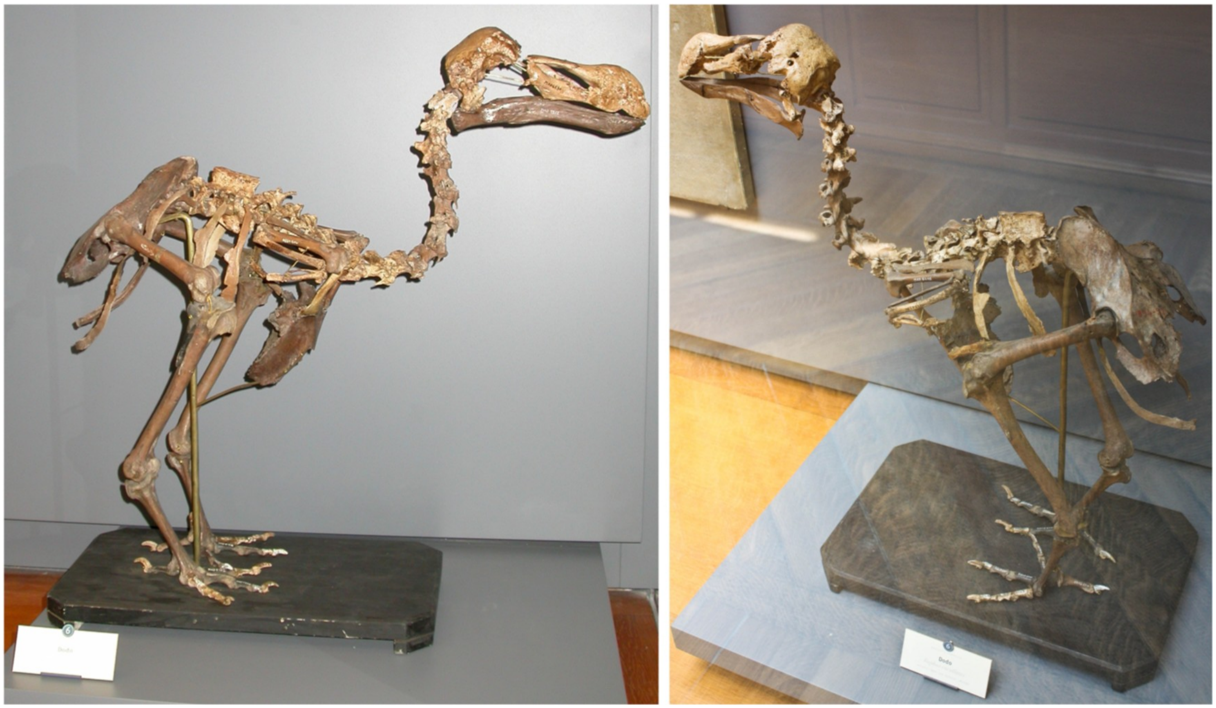
Solitaire pelves (© David Gonzalez).

Muséum national d'Histoire naturelle, Paris

Muséum national d'Histoire naturelle, 57 rue Cuvier, 5th Arrondissement, Paris, France
Laboratoire Mammifères/Oiseaux, MNHN. Laboratoire de Paléontologie, MNHN (Janoo 1997). The following is a partial listing of dodo and solitaire specimens.
Catalogue reference 'MAD' = Madagascan Region

Raphus cucullatus

Nearly complete skeleton (Laboratoire Mammifères/Oiseaux) (Lambrecht 1933) composed of bones from Mare aux Songes bought at an auction in London, March 1866. It was constructed with reference to Savery-Vienna (Van Wissen 1995). Renshaw (1921) stated that it was displayed in a case in the main bird gallery alongside the model of the dodo and a cast of the Tradescant head. SMGP: exhibited in the Palaeontology Gallery (Angst *et al*. 2011).



The MNHN dodo skeleton (*left*: © Daniel Goujet, 2005; *right*: © Julie Remizova, 8th August 2012).

After description, the bones discovered by Théodore Sauzier and his excavation team (see Parish 2013, pp.252-253) were returned to Mauritius by the President of the Excavation Committee (Sauzier). Subsequently, however, the skeleton of the dodo, "the finest known", was taken from Mauritius to the MNHN (Flower 1898) and was donated to the museum by Sauzier (Oustalet 1897). Among other bones the skeleton contains an upper beak (MAD 6530), left and right quadrates (the left lacks the orbital process), mandible (MAD 5312), 1st-18th vertebrae, pelvis, humerus (MAD 4970), ulna (MAD 6555), carpometacarpus with phalanx 1 of digit II and pedal phalanges. Anon. (1903) mentioned "the skeleton which appears in the galleries of ornithology and whose elements were given to the Museum by Mr. Sauzier" (p.111). In the Paris Museum (Jardin des Plantes) in 1914 Killermann saw the dodo skeleton in a glass case, with the legend: "Dronte, espéce éteinte de l'Ile Maurice. Rest faite par M. J. Terrier d'apres les documents ostéologiques et iconographiques"[97] (quoted in Killermann 1915, p.370; see Reconstructions of the Dodo). Killermann also mentioned three other separate pieces of bone (*ibid*.). According to Janoo (1997), the mounted skeleton has palatines modelled in plaster after those of OUM 11605.

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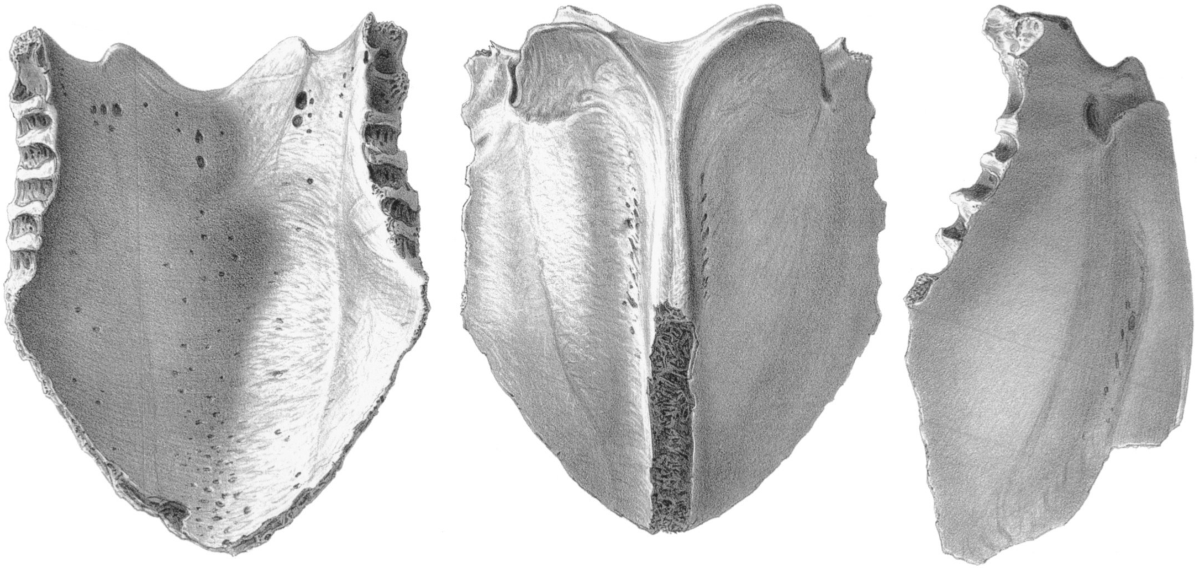
[97] "Dodo, extinct species of Mauritius. Remains assembled by Mr. J. Terrier according to the osteological and iconographical documents".

Milne-Edwards (1866b) noted: "These remains [those found by Clark] were sent to London, where several of them were sold at the auctions on 13 March last; this circumstance enabled me to get an important series of these parts with the help of which one can reconstitute almost the totality of the skeleton, and they are the results provided by the study of these objects that I will ask for the Académie the permission of subject to it" (pp.357-358).

In all, the MNHN has over a thousand individual bones of the dodo (Daniel Goujet, pers. comm., 28th April 2005).

MAD 633 notarium. Figured: Janoo (1997, pl.25, figs.E, F)
MAD 1894-22 sternum, damaged caudally (figured: Milne-Edwards 1866b, pl.14, fig.2, pl.15, fig.1; Janoo 1997, pl.21), pelvis (damaged caudally; mounted in skeleton on display), synsacrum, femora, tibiotarsi and tarsometatarsi (Janoo 1997). *Didus ineptus* Ile Maurice, M. Milne-Edwards.



Sternum (MNHN 1894-22) (Milne-Edwards 1866b, pl.14, fig.2, pl.15, figs.1, 1a).

CG1894 981 (MNHN-ZO-MO-1894-981) left and right femora, left and right tibiotarsi, left and right tarsometatarsi. MNHN, Zoothèque (Mammals and Birds) (Angst *et al*. 2011)
1896-26 tarsometatarsus (Janoo 1997)
MAD 4126 rostrum (Janoo 1997)
MAD 4127 rostrum (Janoo 1997)
MAD 4921 left tibiotarsus (Angst *et al*. 2011). Figured: Janoo (1997, pl.31, figs.A, D)
MAD 4923 right tibiotarsus (Angst *et al*. 2011)
MAD 4970 right humerus (mounted in skeleton on display). Figured: Janoo (1997, pl.13, fig.D, pl.17, fig.B)
MAD 4971 left coracoid. Figured: Janoo (1997, pl.17, fig.H)
MAD 4973 tibiotarsus (Janoo 1997)
MAD 5038 phalanx 1 of left hallux (mounted in skeleton on display)
MAD 5312 mandible (mounted in skeleton on display)
MAD 5533 tibiotarsus (Janoo 1997)
MAD 5600 sternal rib (mounted in skeleton on display)
MAD 5661 premaxilla (Janoo 1997)
MAD 5696 to **MAD 5705** tarsometatarsi (Janoo 1997)

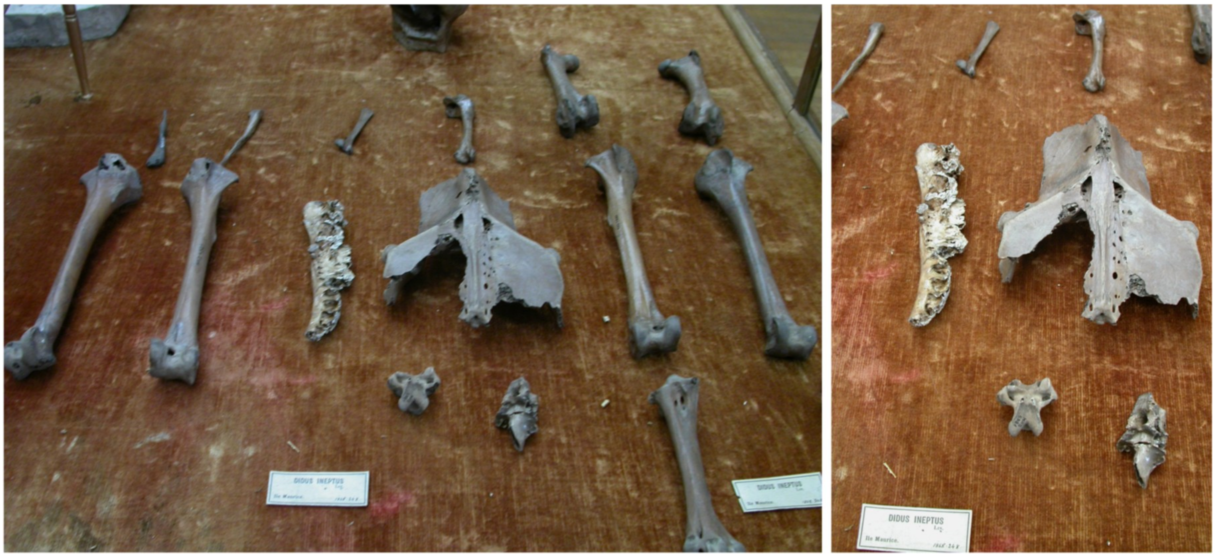
MAD 5702 left tarsometatarsus. Figured: Janoo (1997, pl.13, fig.E, pl.32, fig.B)
MAD 5703 left tarsometatarsus. Figured: Janoo (1997, pl.32, figs.A, B)
MAD 5704 right tarsometatarsus (Angst *et al*. 2011)
MAD 5971 cranium (mounted in skeleton on display). Figured: Janoo (1996, figs.1-4); Janoo (1997, pls.8, 9). The cranium is associated with a rostrum (MAD 6530); these may or may not belong together. This skull was recently described by Janoo (1996). The handwritten label accompanying the bones reads "Dronte crâne, Vallée des Prêtres, M. Carié". Janoo noted that

> the light rosewood tint of the bones suggests that the source was not the Mares aux Songes area, as bones from this site are stained a dark tannin colour. Moreover, while cleaning the skull with very dilute formic acid, gaseous eminations were observed, indicating a calcareous origin for the deposit where it was found [...] The other miscellaneous fragments were not coated with any calcareous layer, and probably come from some other non calcareous region, probably the Vallée des Prêtres area. The material is labelled MAD (for the Madagascan area) (*ibid*., p.60).

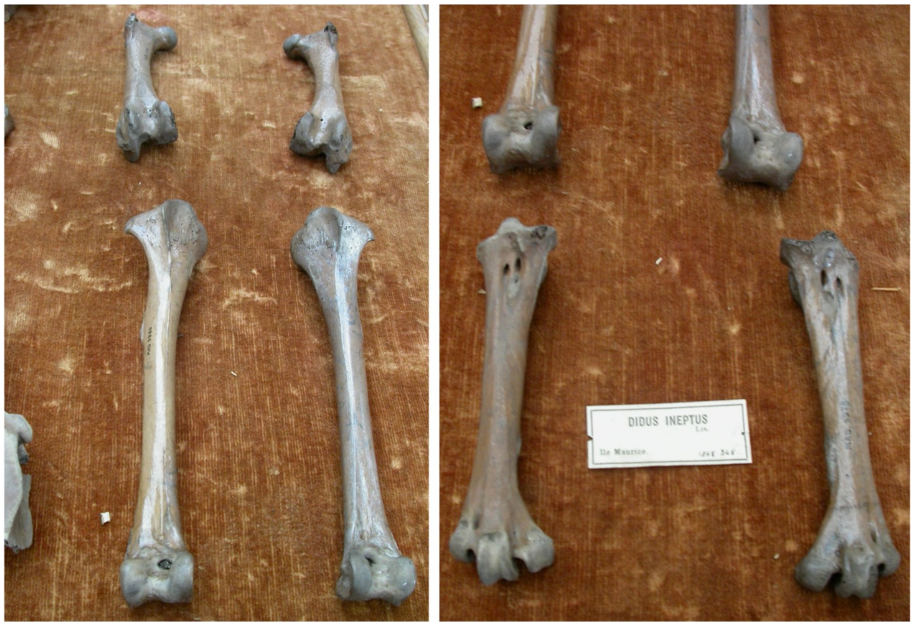
See also Parish (2013, pp.254, 364).
MAD 5972 rostrum (Janoo 1997)
MAD 5976 right femur (Angst *et al*. 2011)
MAD 5977 left tibiotarsus (Angst *et al*. 2011)
MAD 5978 left tarsometatarsus (Angst *et al*. 2011)
MAD 5979 left femur (Angst *et al*. 2011)
MAD 5980 right tibiotarsus (Angst *et al*. 2011)
MAD 5981 tarsometatarsus (Janoo 1997)
MAD 5983 frontal process of the premaxilla. Figured: Janoo (1996, fig.5E)
MAD 5984 frontal process of the premaxilla. Figured: Janoo (1996, fig.5D)
MAD 5985 fragment of the supraorbital region of the frontal. Figured: Janoo (1996, fig.5F)
MAD 5986 corpus ossis premaxillare, damaged. Figured: Janoo (1996, fig.5A)
MAD 5987 fragment of caudal part of cranium, with internal ear region (left side) and remnants of the semicircular canals. Figured: Janoo (1996, fig.5C)
MAD 5988 fragment of tympanic region, including the "basioccipital-squamosal complex" and "the semicircular canals, on the right side" (Janoo 1997, p.92). Figured: Janoo (1996, fig.5B)
MAD 5989 proximal end of right mandibular ramus. Figured: Janoo (1996, fig.5G)
MAD 5990 cranial fragment (left side) with semicircular canals. Figured: Janoo (1997, pl.10, figs.A, B)
MAD 5991 cranial fragment (left side) with semicircular canals (Janoo 1997), cervical vertebra
MAD 5992 cranial fragment (right) with semicircular canals. Figured: Janoo (1997, pl.10, figs.C, D), rostrum (Janoo 1997)
MAD 5992 to **MAD 6071** ["MAD 5992 à MAD 6071"] mandibular rami, left or right (Janoo 1997)
MAD 5993 to **MAD 6000** six left and two right quadrates (lacking the orbital process, except for one) (Janoo 1997)
MAD 6013 rostrum (Janoo 1997)
MAD 6015 rostrum (Janoo 1997)
MAD 6016 rostrum (Janoo 1997)
MAD 6018 rostrum (Janoo 1997)
MAD 6019 rostrum (Janoo 1997)
MAD 6040 rostrum (Janoo 1997)
MAD 6041 rostrum (Janoo 1997)
MAD 6045 distal portion of mandible. Figured: Janoo (1997, pl.13, fig.B)
MAD 6050 to **MAD 6052** rostra (Janoo 1997)
MAD 6054 rostrum (Janoo 1997)
MAD 6071 rostrum (Janoo 1997)
MAD 6172 phalanx 1 of left digit III (mounted in skeleton on display)
MAD 6179 phalanx 2 of left digit III (mounted in skeleton on display)
MAD 6282 4th cervical vertebra (mounted in skeleton on display)
MAD 6291 12th cervical vertebra (mounted in skeleton on display)
MAD 6355 to **MAD 6395** vertebrae (Janoo 1997)

MAD 6396 to **MAD 6399** notaria (Janoo 1997; MAD 6397. Figured: Janoo (1997, pl.25, fig.D)
MAD 6399 synsacrum (Janoo 1997)
MAD 6405 cranium (Janoo 1997)
MAD 6416 left humerus (mounted in skeleton on display)
MAD 6420 left femur. Figured: Janoo (1997, pl.13, fig.C)
MAD 6425 femur (Janoo 1997)
MAD 6427 (No. 1868-249) wax model of the Prague beak, plaster cast of the Copenhagen skull (Janoo 1997)
MAD 6530 beak ('rostrum') (mounted in skeleton on display). See also Parish (2013, pp.71, 254, 364). See MAD 5971. Figured: Janoo (1996, figs.1-4); Janoo (1997, pls.8, 9)
MAD 6532 complete mandible. Figured: Janoo (1997, pl.4)
MAD 6534 tibiotarsus (Janoo 1997)
MAD 6550 left ulna (mounted in skeleton on display)
MAD 6555 ulna (mounted in skeleton on display)
MAD 6581 humerus (Janoo 1997)
MAD 6583 humerus (Janoo 1997)
MAD 6587 to **MAD 6592** humeri (Janoo 1997)
MAD 6594 humerus (Janoo 1997)
MAD 6596 humerus (Janoo 1997)
MAD 6596a tarsometatarsus (Janoo 1997)
MAD 6596b tarsometatarsus (Janoo 1997)
MAD 6599 plaster cast of tarsometatarsus (Janoo 1997) [left tarsometatarsus: Angst *et al*. 2011]
MAD 6690 sternal rib (mounted in skeleton on display)
MAD 7115 jugal arch (Janoo 1997)
MAD 7117 jugal arch (Janoo 1997)
[MAD 5971, 5983 to 5989, 6530: Vallée des Prêtres, near Port Louis, Mauritius]

Mounted skeleton. Currently displayed in a glass case in the first floor room, the Salle des Espèces Disparues of the Grande Galerie de l'Evolution, along with two dodo reconstructions and some femora in a side case.
Mounted right hindlimb. MNHN, Zoothèque (Mammals and Birds) (Angst *et al*. 2011)
Left pterygoid (the only one present in the MNHN collection: Janoo 1997)
Atlas (Janoo 1997)
Other bones, including: right scapula, clavicle, right humerus, pelvis (damaged cranially and caudally), fibula, pedal phalanges.



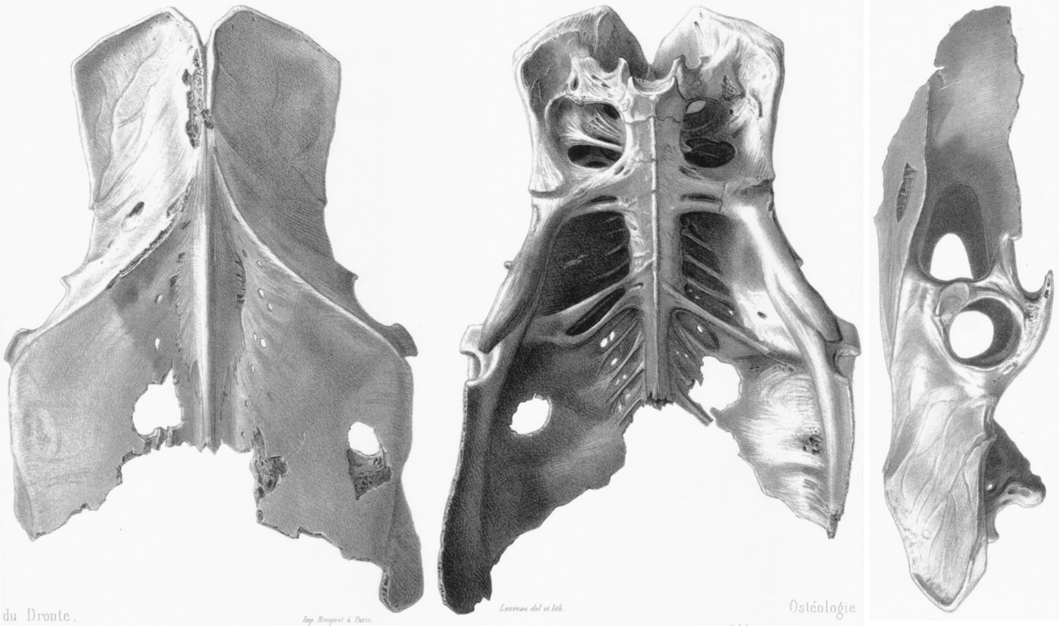
MNHN dodo specimens (© Daniel Goujet, 2005).



MNHN dodo specimens (© Daniel Goujet, 2005).

Specimens described and figured by Milne-Edwards (1866b) [these may or may not be the same as those listed above]: 9th cervical vertebra (figured: Milne-Edwards 1866b, pl.14, fig.4); 'lower' cervical vertebra (figured: Milne-Edwards 1866b, pl.14, fig.5); left scapula (figured: Milne-Edwards 1866b, pl.17, fig.2); pelvis, damaged caudally (figured: Milne-Edwards 1866b, pl.13, fig.1, pl.14, fig.1); ?left fibula (figured: Milne-Edwards 1866b, pl.14, fig.3); right femur (figured: Milne-Edwards 1866b, pl.16, fig.2); right tibiotarsus (figured: Milne-Edwards 1866b, pl.17, fig.1); right tarsometatarsus (figured: Milne-Edwards 1866b, pl.16, fig.1). See MAD 1894-22.

(Daniel Goujet, 28th April 2005, photos): "DIDUS INEPTUS LIN. Ile Maurice. 1868-248"


du Dronte.
Imp. Becquet à Paris.
Lavreau del et lith.
Ostéologie

Pelvis (Milne-Edwards 1866b, pl.13, figs.1, 1a, pl.14, fig.1).

In addition to the mounted skeleton mentioned above, there is another, currently on display in the Grand Galerie of the MNHN, in a room devoted to rare, endangered and extinct species ("Les espèces en danger, rares ou éteintes"). See also Reconstructions of the Dodo.

Dodo skeleton on display in the Grand Galerie (© Charlie Meecham, 22nd November 2012).

De Blainville requested Buckland to make a cast of the Tradescant head and to send it to him, which was done "thanks to the kindness of Mr. [J. S.] Duncan" (1835, p.34). De Blainville (1835, pl.iv) figured the cast, represented natural size. De Blainville presented the cast at a meeting of the *Académie des Sciences* in 1834 when he supplemented the report on the dodo he had given in 1830 (Behn 1868). De Blainville & Maupied (1845) mentioned "a plaster model of the head and feet, in Paris" (p.398). Jéhan (1853) noted that De Blainville had the idea to make a cast of the Tradescant head and "lately presented the plaster [cast] at one of the meetings of the Institute" (p.578). Figured: De Blainville (1835, pl.iv [reproduced: Parish 2013, fig.5.24]); Janoo (1997 pl.2, fig.A)?

Lankester (*c*.1895) recorded the following regarding the Oxford University Museum collections: "A cast of the skull and lower jaw of the remarkable bear-like carnivor [*sic*] *Æluropus melanoleucus*, M. Edw., received in exchange for the cast of the head and foot of the Oxford Dodo, from Prof. Alphonse Milne Edwards, Director of the Jardin des Plantes, Paris" (p.3).

A cast of the Tradescant head is currently on display (Eric Buffetaut, pers. comm., 28th February 2012).

See Parish (2013, pp.242, 254, 355, 363, 364) for further details of dodo bones.

Pezophaps solitaria
MAD 6331 to **MAD 6354** ungual pedal phalanges (Janoo 1997)
MAD 6401 tibiotarsus (Janoo 1997)

MAD 6403 tibiotarsus (Janoo 1997)
MAD 6405 fragment of cranium (Janoo 1997)
MAD 6406 tarsometatarsus (Janoo 1997)
MAD 6408 tarsometatarsus (Janoo 1997)
MAD 6410 humerus (Janoo 1997)
MAD 6418 humerus (Janoo 1997)
MAD 6419 humerus (Janoo 1997)
MAD 6420 femur (Janoo 1997)
MAD 6422 to **MAD 6425** femora (Janoo 1997)
MAD 6420-6277 pedal phalanges (Janoo 1997)
Vertebrae (Lambrecht 1933, Hachisuka 1953)
Hachisuka (1953) also mentioned a tibiotarsus

Bones found in 1786, encrusted with calcium carbonate (stalagmitic material). Originally deposited in the collection of the Société d'Histoire Naturelle, Mauritius (Hume *et al*. 2014b). Presented by Georges Cuvier to the Académie des sciences de Paris in 1830 (Gervais 1859). Catalogue numbers courtesy of Ronan Allain (pers. comm., 20th March 2012):

MNHN-F MAD6001 cranium, damaged. Maximum width (from cast UMZC 415.L): 75.8mm (3 inches (81.21mm) wide: Audouin *et al*. 1830; 75mm: Gervis 1859). Length from occiput to the origin of the nasals: 80mm (Gervais 1859). The encrustation on the cranium is up to 2 lines (4.2mm) thick (Melville 1848). No.1 of Strickland (1853). Figured Strickland & Melville (1848, pl.xiii, figs.1-4 [reproduced: Parish (2013, fig.5.35)]); Janoo (1997, pl.12, fig.A).

MNHN-F MAD6400 sternum, damaged. The sternum is very large for the species, and the individual it came from was probably not smaller than the largest individual of *Raphus* known from a sternum (Newton & Newton 1869). The carina is almost 2 inches (54.14mm) deep (Audouin *et al*. 1830). Height: 55mm, width at middle: 95mm[98] (Gervais 1859). This specimen was examined by Melville (1848, pl.xiii, figs.5, 6) is better preserved on the left side, with the left craniolateral process remaining. The cranial portion and part of the costal margin are present, although the lateral trabeculae and the caudal part of the sternum are missing. No.2 of Strickland (1853). Figured: Strickland & Melville (1848, pl.xiii, figs.5-6 [reproduced: Parish (2013, fig.5.35)]); Gervais (1867-1869, pl.xxxii, figs.1, 1a).

MNHN-F MAD6404 right tarsometatarsus. No.5 of Strickland (1853). Length (from cast UMZC 415.L): 186.5mm. Length: 180mm (Gervais 1859).[99] [Listed as a cast of a tarsometatarsus by Janoo (1997)]. Figured: Strickland & Melville (1848, pl.xv, figs.3-3d [reproduced: Parish (2013, fig.5.37)]).

MNHN-F MAD6421 left femur. No.4 of Strickland (1853). Length (from cast UMZC 415.L): 187.8mm. Length: 160mm,[100] proximal width 50mm, distal width 57mm (Gervais 1859). [Listed as a cast of a femur by Janoo (1997)]. Figured: Strickland & Melville (1848, pl.xiv, figs.8-10 [reproduced: Parish (2013, fig.5.36)]).

Left humerus.[101] No.3 of Strickland (1853). Length: 120mm, proximal width 45mm, distal width 24mm (Gervais 1859). Length (from cast UMZC 415.L): 125.8mm. The humerus is not kept with the other bones and may be stored elsewhere (Ronan Allain, pers. comm., 20th March 2012). Figured: Strickland & Melville (1848, pl.xiv, figs.1-3 [reproduced: Parish (2013, fig.5.36)]); Gervais (1867-1869, pl.xxxii, figs.2, 2a, 2b).

Unregistered three left carpometacarpi (♂: Hume & Steel 2013), three right carpometacarpi (♂: Hume & Steel 2013), left carpometacarpus (♀: Hume & Steel 2013).

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[98] "La largeur de ce sternum à son milieu est de 0,095" (p.427).

[99] Gervais (1859) gave the measurements for the tarsometatarsus as follows: length: 0,018; width at its tibial articulation: 0,07; width at the trochleae: 0,072.

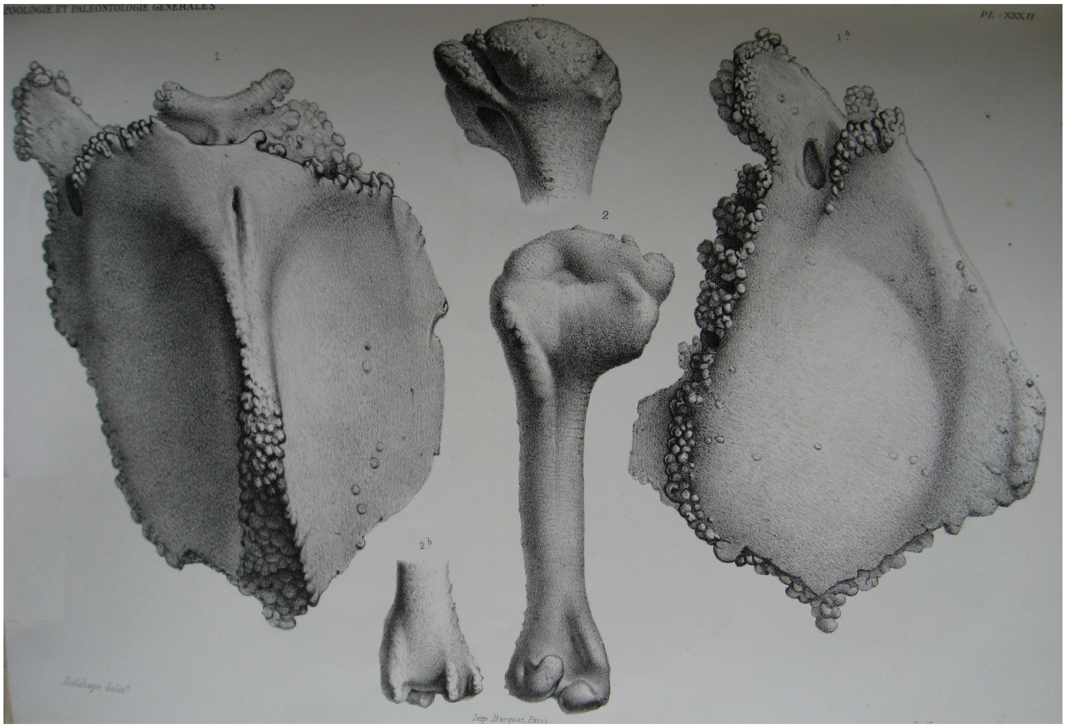
[100] Given as 0,016 by Gervais (1859).

[101] Stated to be a right humerus by Gervais (Anon. 1851d).

Mantell (1858) remarked that “bones either of the Dodo or of the Solitaire are found imbedded in sandstone covered by lava of recent origin” (p.859).[102]

Regarding the possibility of bringing the Paris specimens to Oxford for the 1847 meeting of the BAAS, Strickland wrote to Charles-Lucien Bonaparte: “Now if you have any influence with M. de Blainville to bring these bones himself, or to allow them (or at least casts or drawings of them) to be brought to the Oxford meeting” (letter dated Oxford, 2nd June 1847, MS 3398, MNHN, quoted in Stroud 2000, p.222). Bonaparte apparently borrowed the Paris specimens and brought them to the 1847 Oxford BAAS meeting himself (Stroud 2000). In thanks Strickland sent him a cast of the Tradescant foot, via William Jardine (letter from Strickland to Bonaparte, dated Oxford, 1st July 1847, MS 3398, MNHN: *ibid.*). In a letter to Strickland (9th July 1847; E-1204), written from 20 Broad Street, Golden Square, London, Bonaparte acknowledged receipt of a cast of the head of the dodo (presumably of the Tradescant specimen; Rookmaaker 2010). Bonaparte exhibted a cast of the head and one of the foot on 12th August 1847 at the eighth meeting of the ungarischer Aerzte und Naturforscher in Oedenburg (Zipser 1847).

“From the uniformity in the appearance and thickness of the incrustation, it appears evident that these bones have all been obtained in one locality, probably in some pool on the floor of a cavern, exposed to the dripping of water containing carbonate of lime” (Strickland 1848, p.53). The five Paris bones plus Strickland’s left tarsometatarsus (UMZC 415.O) were considered to be from a single adult skeleton (Strickland 1853), a male. Strickland asked De Blainville if the Paris specimens could be sent to England for examination and De Blainville commissioned Milne-Edwards to bring them with him to the June 1847 meeting of the BAAS at Oxford (Strickland 1848). The five 1786 bones were not seen by Killermann on his visit in 1914 (Killermann 1915). Casts are in the UMZC (415.L). See Parish (2013, pp.226-228, 232, 233, 337) for further details.



Sternum (MNHN-F MAD6400) (Gervais 1867-1869, pl.xxxii, figs.1, 1^{a}) and left humerus (shown reversed; *ibid.*, figs.2, 2^{a}, 2^{b}). (“Delahaye delin.^{t}” “Imp. Becquet, Paris”).

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[102] Seventh edition of Mantell’s work, revised by T. Rupert Jones. In an earlier edition Mantell (1839) reported that the bones had been discovered “imbedded in marlstone” (p.736). See Parish (2013, p.379n55).

Oustalet (1874) figured a rather inaccurate picture by A. Tissandier of the skeleton of the solitaire, illustrated from a drawing from Milne Edwards' course at the Jardin des Plantes.

Muséum d'Histoire Naturelle, Rouen

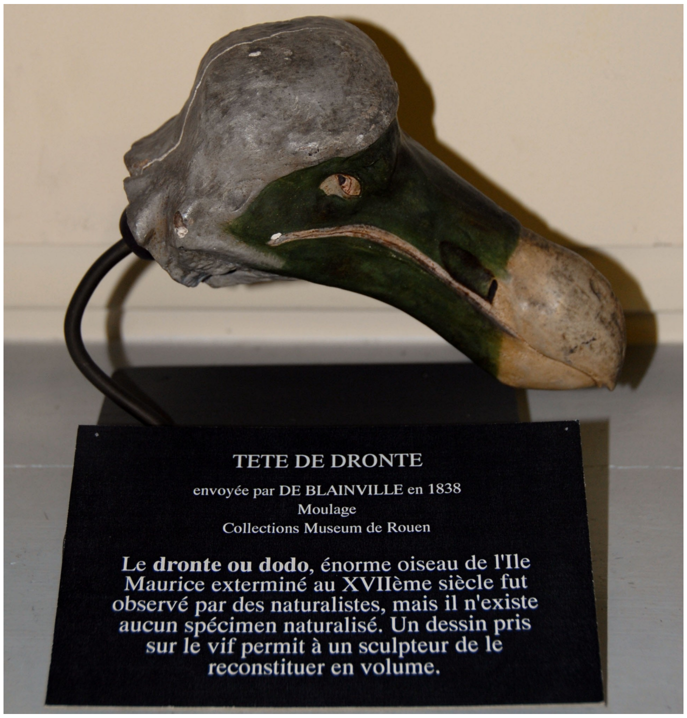
Muséum d'Histoire Naturelle, 198, rue Beauvoisine, 76000 Rouen, France

Raphus cucullatus

Salles de Paléontologie, Salle Quaternaire, Collection Générale, Epoque actuelle:

"Head of the *Dodo*, bird neighbour of the vultures" (Pennetier 1900, p.42). "Cast donated by de Blainville" (*ibid*., p.43). A small card notes that it was donated by De Blainville in 1838 (Sandra Leboucher, pers. comm., 5th March 2012). The face of the cast is painted green and the feathered portion grey (as in De Blainville 1835, pl.i). No catalogue number (Thierry Kermanach, pers. comm., 13th March 2012). The information on the stand reads:

TETE DE DRONTE
envoyé par DE BLAINVILLE en 1838
Moulage
Collections Museum de Rouen
Le dronte ou dodo, énorme oiseau de l'Ile
Maurice exterminé au XVIIè siècle fut
observé par des naturalistes, mais il
n'existe
aucun spécimen naturalisé. Un dessin pris
sur le vif permit à un scuplteur de le
reconstituer en volume.[103]


TETE DE DRONTE
envoyée par DE BLAINVILLE en 1838
Moulage
Collections Museum de Rouen
Le dronte ou dodo, énorme oiseau de l'Ile
Maurice exterminé au XVIIème siècle fut
observé par des naturalistes, mais il n'existe
aucun spécimen naturalisé. Un dessin pris
sur le vif permit à un sculpteur de le
reconstituer en volume.

Cast of the Tradescant head, Muséum d'Histoire Naturelle, Rouen (© T. Kermanach, Muséum de Rouen).

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[103] "HEAD OF DODO sent by DE BLAINVILLE in 1838 Cast Collections Museum of Rouen The dronte dodo or, enormous bird of Mauritius exterminated in the XVIIth century was observed by naturalists, but there is no stuffed specimen. A drawing taken from life allowed a sculptor to reconstruct it in volume [*i.e*., 3-D]."

Musée Municipal d’Elbeuf

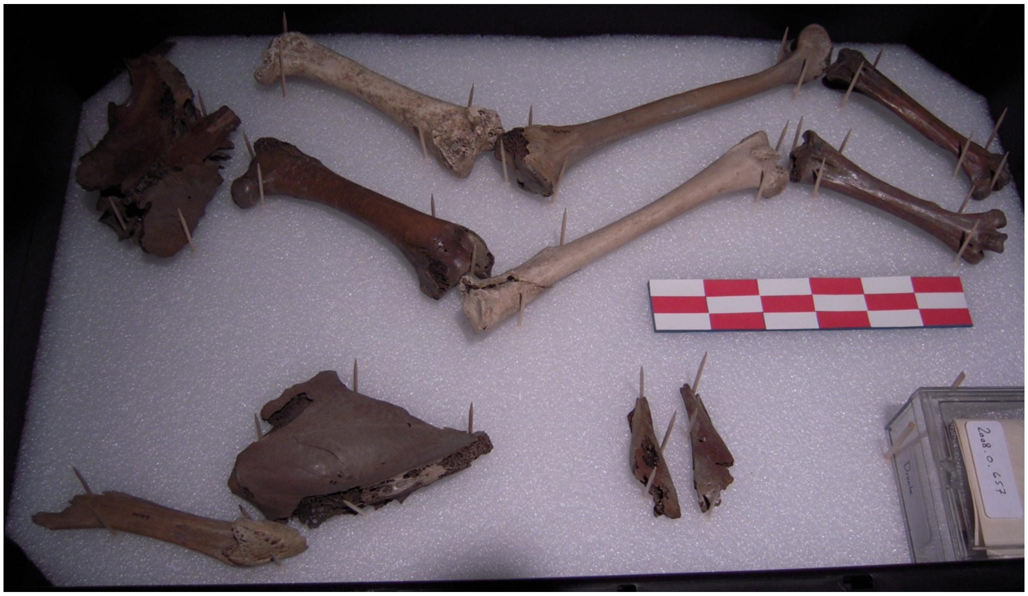
Musée Municipal d’Elbeuf, Place A. Briand 76500 Elbeuf, France

Raphus cucullatus

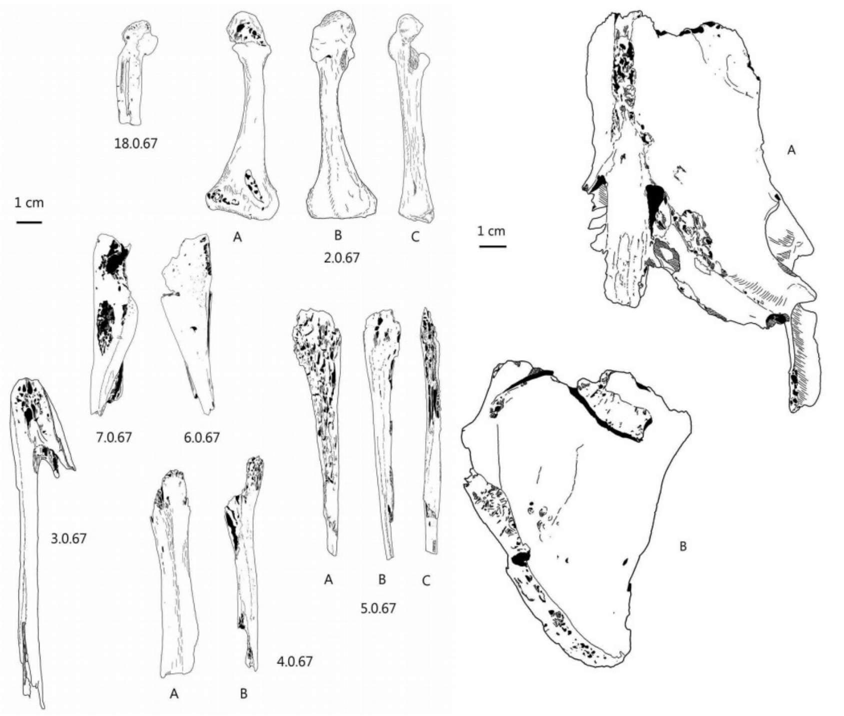
Twenty-three bones from more than one individual (mounted on a board), a gift from Paul Carié in 1923. Figured: Tabouelle (2007, p.15); Angst & Buffetaut (2010, pls.i-iv).

1.0.67 right fibula
2.0.67 right coracoid
3.0.67 mandibular symphysis and distal portion of left ramus (listed as a ‘prémaxillaire’ by Angst & Buffetaut 2010)
4.0.67 frontal process of premaxilla
5.0.67 unidentified bone (‘préfrontal’ of Angst & Buffetaut 2010). Cf. portion of frontal process of premaxilla
6.0.67 “prémaxillaire droit” of Angst & Buffetaut (2010)
7.0.67 “prémaxillaire gauche” of Angst & Buffetaut (2010)
8.0.67 left femur
9.0.67 right femur *
10.0.67 right tibiotarsus *
11.0.67 left tibiotarsus
12.0.67 left tarsometatarsus
13.0.67 right tarsometatarsus
14.0.67 pedal ungual phalanx
15.0.67, **16.0.67**, **17.0.67**, **19.0.67**, **20.0.67** pedal phalanges
21.0.67 left first metatarsal
18.0.67 carpometacarpus (listed as ‘radius-ulna’ by Angst & Buffetaut 2010)
sternum (damaged, listed as a scapula by Angst & Buffetaut 2010)
pelvis (lacking most of its left and caudal parts)

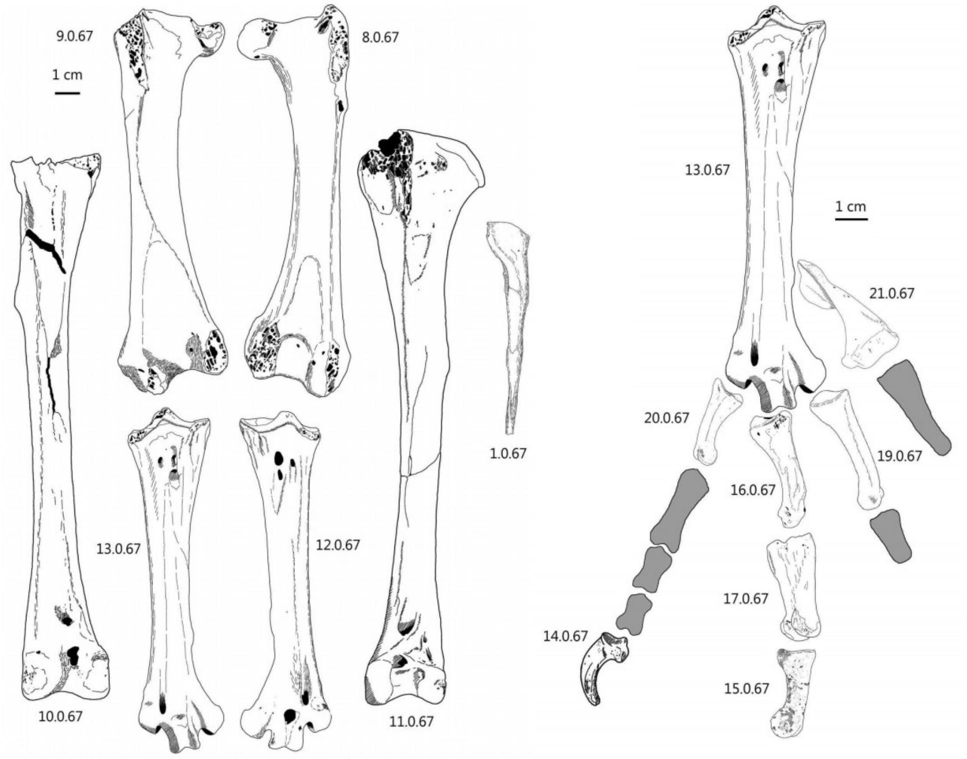
Some of the bones are brown and most probably have a Mare aux Songes origin, while others are whitish (*) and are probably from caves. The bones are fairly well preserved, although some have worn articular ends (Angst & Buffetaut 2010).



Musée Municipal d’Elbeuf dodo specimens (© Delphine Angst).



Musée Municipal d'Elbeuf dodo specimens (Angst & Buffetaut 2010, pls.iii, iv; with permission).



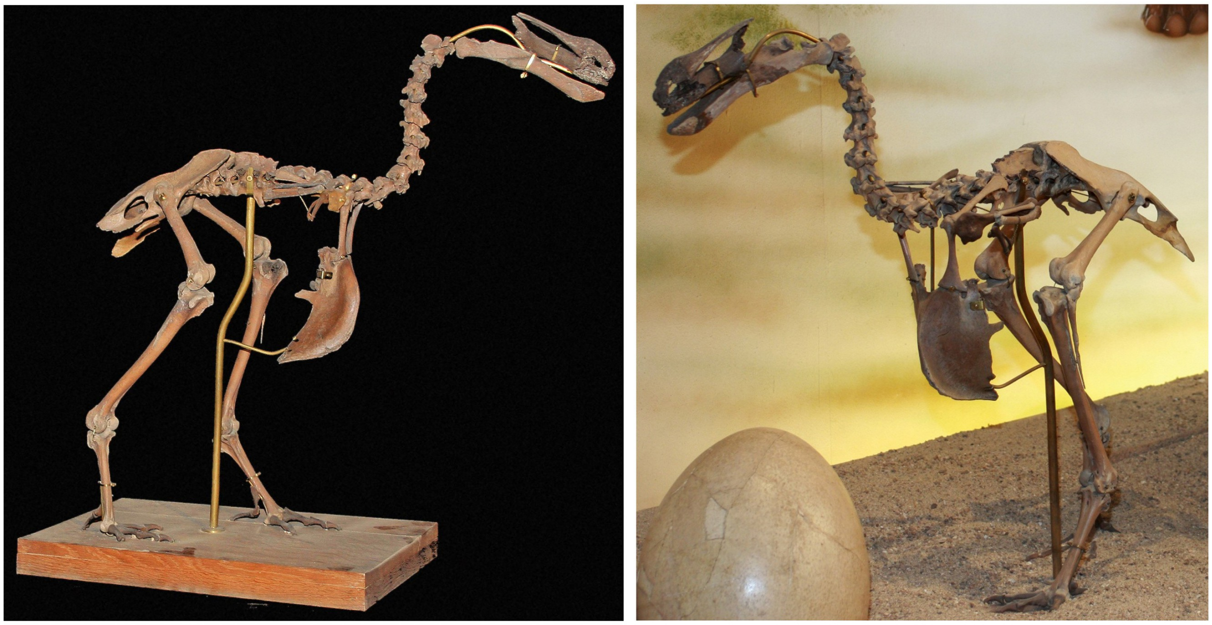
Musée Municipal d'Elbeuf dodo specimens (Angst & Buffetaut 2010, pls.i, iI; with permission).

Muséum d'Histoire Naturelle, Orléans

Muséum d'Histoire naturelle, 6 rue Marcel Proust, 45000 Orléans, France

Raphus cucullatus

Incomplete composite skeleton, displayed alongside dodo reconstruction. The skeleton was purchased in 1905 from the firm of Boubée[104] for 1200 gold francs (Philippe Guillet *ex* Eric Buffetaut, pers. comm., 23rd February 2012; 6th March 2012). The bones are brown (typical of Mare aux Songes), although differences in colour suggest that some may be casts (Eric Buffetaut, pers. comm., 23rd February 2012).



Muséum d'Histoire Naturelle, Orléans, dodo skeleton (*left*: © Muséum d'Orléans, *right*: © Christophe Camus – Muséum d'Orléans).

Muséum d'Histoire Naturelle, La Rochelle, France

Muséum d'Histoire Naturelle, 28 rue Albert 1er, 17000 La Rochelle, France

Raphus cucullatus

MHNLR O.641 fairly complete mounted skeleton, with some reconstructed elements. It was listed by Jouanin (1966) and is currently on display in a showcase in the gallery of zoology, upstairs (Zabalza 2010). The skeleton was purchased in 1932[105] by museum conservator Etienne Loppé from the Paris company Emile Deyrolle for 4,000 francs. According to a letter from Deyrolle to Loppé, dated 25th April 1932, several bones in the skeleton are casts from originals in the Mauritius Museum (this probably represents Thirioux's 1902 skeleton, now apparently lost). These casts are as follows: cranium, maxilla, quadrate, jugal arches, axis, 14th and 18th vertebrae, ribs, left scapula, coracoid, humerus, radius, ulna, carpometacarpus and alar phalanges, fibulae, pedal phalanges (Guillaume Baron, pers. comm., 22nd March 2012).[106] Unfortunately, the origin of the skeleton is unknown (*ibid*.). Figured: Zabalza (2010);

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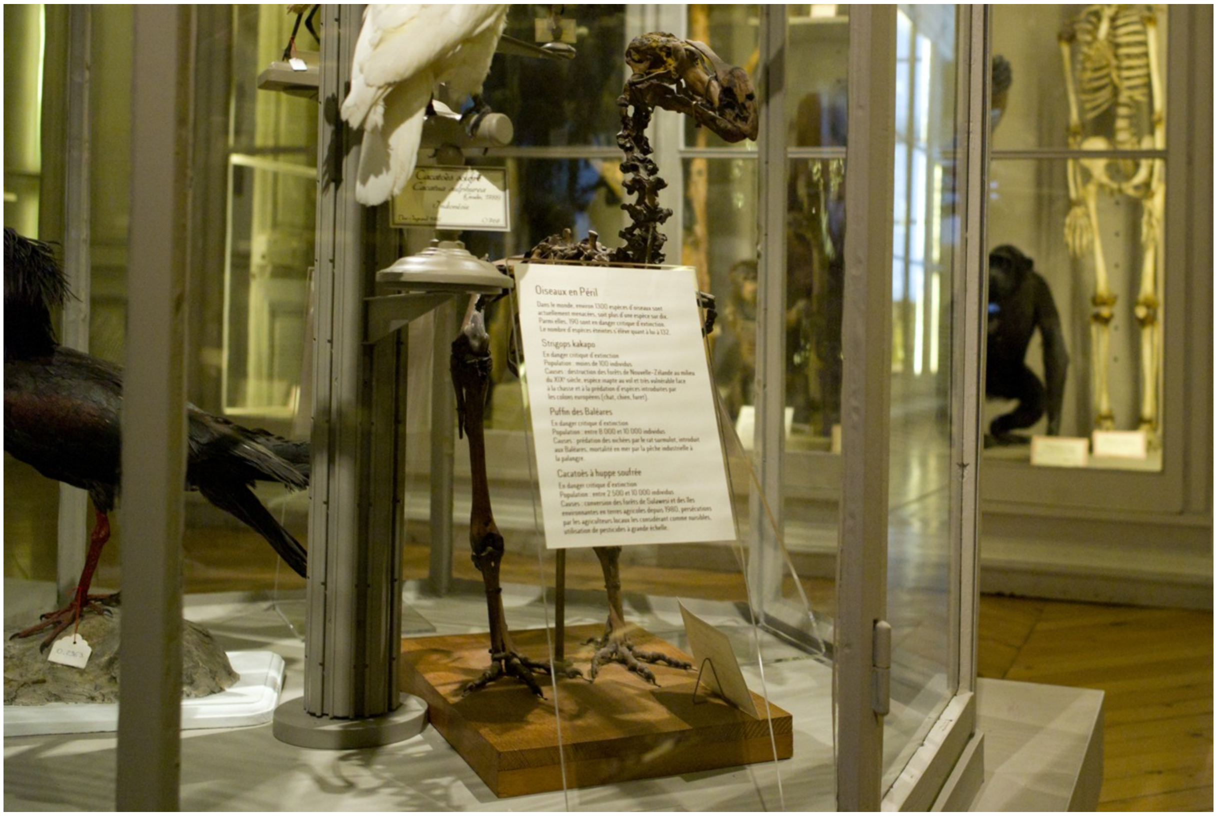
[104] The firm of E. Boubée Fils, Comptoir Central d'Histoire Naturelle, was at 3 boulevard et place St-Andrés-des-Arts, Paris.

[105] Zabalza (2010), although Van Wissen (1995), followed by Kallio (2005), stated that this was in 1934.

[106] *Contra* Zabalza (2010), who stated that Baron had remarked that: "Part of cranium is original, part of the beak

http://www.museum-larochelle.fr/uploads/tx_photographiclibrary/O.641_Raphus_cucullatus_P.jpg [accessed 5 March 2012]



MHNLR O.641 (© Charlie Meecham, 2012).

Musée des confluences, Lyon

Musée des confluences, 28 Boulevard des Belges, 69006, Lyon, France. Formerly Museum d’Histoire Naturelle

Raphus cucullatus

QV 12 near complete skeleton. It was donated by Claudius Côte[107] in 1910, labeled as “*Didus ineptus*” and arrived in the collection on 25th December 1910 (Didier Berthet, pers. comm., 5th November 2009). The mount looks like a Deyrolle product (pers. obs.). Previously exhibited in the “Exposition Commémorative Organisée au Muséum d’Histoire Naturelle a l’Occasion du Cent Cinquantième Anniversaire de la Société Linnéenne de Lyon”, April-October 1972 (no.7; Bange 1972).[108] It is currently exhibited in the “espèces éteintes du fait de l’homme” (February 2001). Expos permanentes – animaux disparus.

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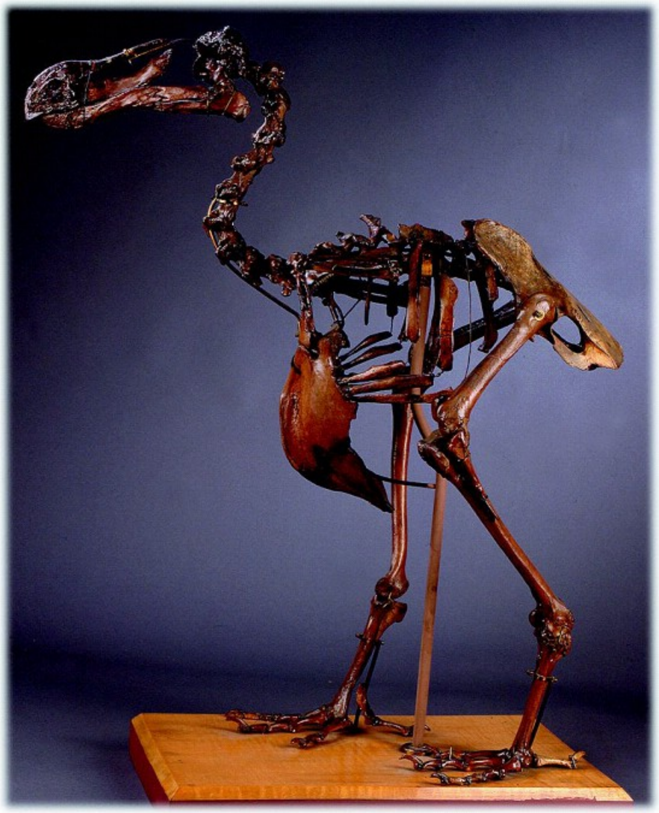
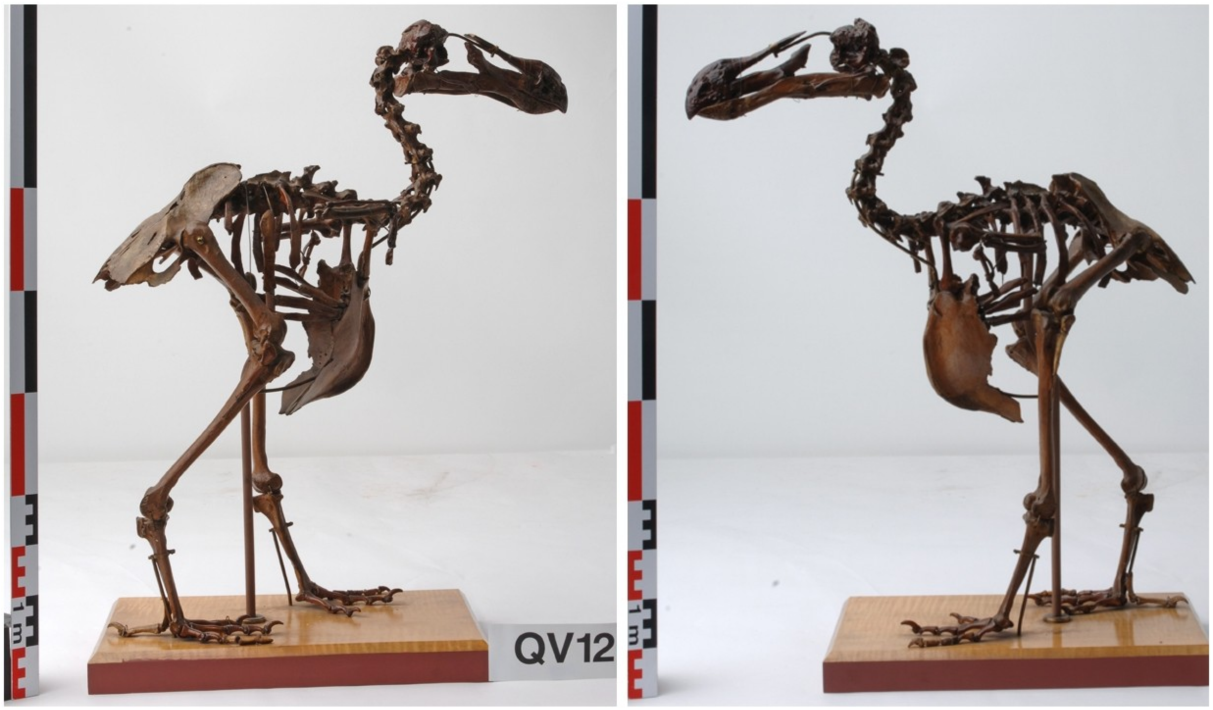
also, as well as a wing”.

[107] Claudius Côte (1881-1956). Collector who donated numerous specimens to the Muséum d’Histoire Naturelle, Lyon.

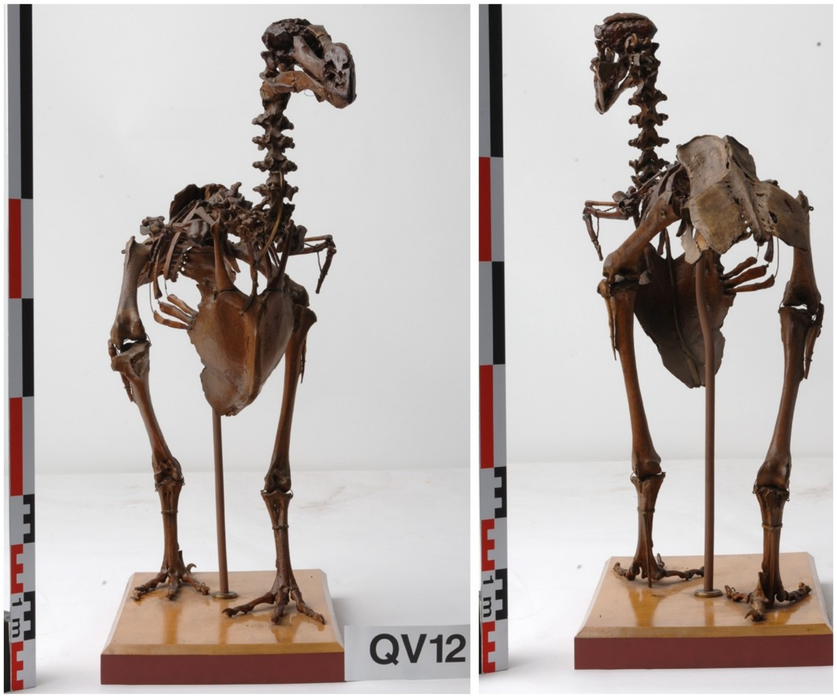
[108] Also in the exhibition was a colour plate from Owen & Broderip (1866) from the Carié Collection (no.8 of Bange 1972).



QV 12 (© Musée des confluences, Lyon).



QV 12 (© Musée des confluences, Lyon).



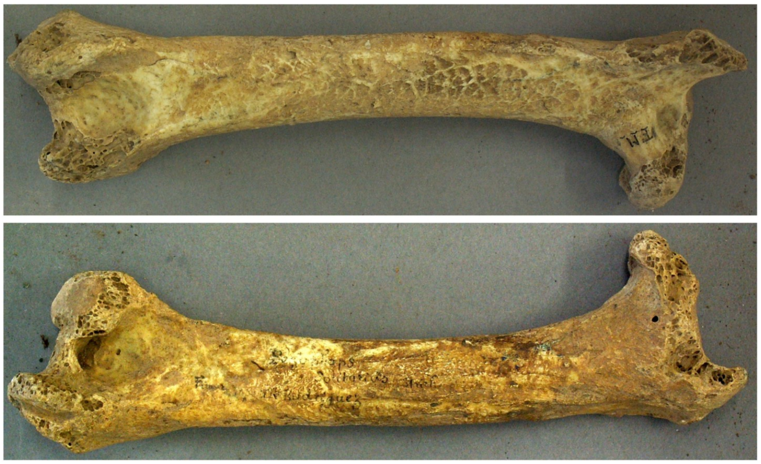
QV 12 (© Musée des confluences, Lyon).

QV 13 in the stores there is also a left tarsometatarsus, also donated by Côte in 1910, and labeled as "*Didus ineptus*" with the origin given as "Madagascar Sirabe" (Michel Philippe, pers. comm., 16th February 2001). [this has not been located (Didier Berthet, pers. comm., 5th November 2009)]

Pezophaps solitaria

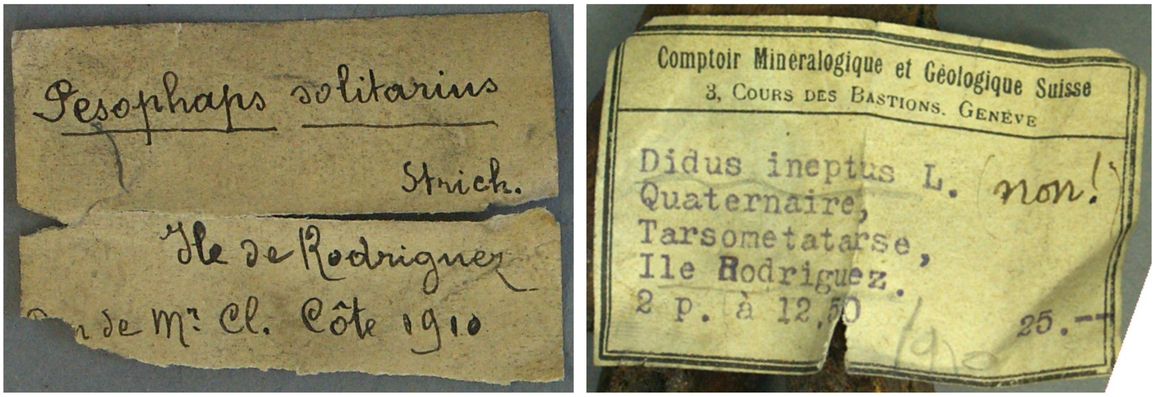
[no catalogue number] right femur presented by Claudius Côte in 1910 (Michel Philippe, pers. comm., 16th February 2001). Bears worn ink writing on caudal face; "I M" or "T M" on cranial face of the collum. The accompanying label reads:

Pesophaps solitarius
Strick.
Ile de Rodriguez
[Don] de Mr. Cl. Côte 1910



Right femur of *Pezophaps* (© Musée des confluences, Lyon).

Two tarsometatarsi, one with the typewritten label "Didus ineptus L. Quaternaire, Tarsometatarse, Ile Rodriguez. 2 p. à 12.50 25.--", '1910' in pencil, and '(non!)' in black ink, and one bearing "Didus Ineptus [Rod]riguez 1910 2165" in ink are actually those of aepyornithids.



Pezophaps solitarius
Strich.
Ile de Rodriguez
n de Mr. Cl. Côte 1910

Comptoir Mineralogique et Géologique Suisse
3, Cours des Bastions. Genève
Didus ineptus L. (non!)
Quaternaire,
Tarsometatarse,
Ile Rodriguez.
2 p. à 12.50 25.--
1910

Labels: *left*: accompanying the right femur of *Pezophaps*, *right*: accompanying an aepyornithid tarsometatarsus (© Musée des confluences, Lyon).

Muséum d'Histoire Naturelle d'Aix-en-Provence

Muséum d'Histoire Naturelle – Hôtel Boyer d'Eguilles, 6 rue Espariat, 13100 Aix-en-Provence, France

Raphus cucullatus

A poor quality recent resin cast of a mounted skeleton on display upstairs at the Natural History Museum in Aix-en-Provence (Eric Buffetaut, pers. comm., 28th February 2012).

Dodo skeleton, Muséum d'Histoire Naturelle d'Aix-en-Provence (© Charlie Meecham, 2012).

Akademisch Museum, Groningen

University Museum, Oude Kijk in ’t Jatstraat 7a, 9712 EA Groningen, The Netherlands

Raphus cucullatus

The “Index Rerum Naturalium” of specimens conserved in the Akademisch Museum, Groningen, lists:

> “24 (5) *Inepti*, Awkward-birds [Plompevogels].
> 83 Didus, Doodaars or Walgvogel. (An extinct type [Geslacht]).
> Apteryx, Nail-wing [Nagelvlerk]” (Van Swinderen 1822, p.19).

However, this could just be a classification entry, rather than a record of an actual specimen in the collection. The “Akademisch Museum van Natuurlijke Historie en Vergelijkende Ontleedkunde” was founded by Theodorus van Swinderen in 1816. A fire in 1906 destroyed the natural history collection, and as such it is not known whether there were formerly any dodo remains at Groningen (Engel 1986; Rolf ter Sluis, pers. comm., 22nd September 2011).

Emmen Noorderdieren Park

Dierenpark Emmen, Hoofdstraat 18, Postbus 1010, 7801 BA Emmen, The Netherlands

Raphus cucullatus

Emmen Noorderdieren Park formerly exhibited a reproduction of a dodo skeleton (Marco van Leeuwen, pers. comm., 2nd May 2008). It was created by Aart Walen of “Creatures and Features”, Amsterdam, and purchased from him (Pierre de Wit, pers. comm., 14th May 2008), but is no longer in the collection (Jolanda Boerhof, pers. comm., 20th May 2008).

Dodo skeleton formerly exhibited at Emmen Noorderdieren Park (© Marco van Leeuwen, 2nd December 2007).

Haarlem

Martin (1884 *vide* Oudemans 1917b) stated that the museums of Copenhagen and Harlem possessed head and feet of the dodo, from which many casts were made. Brehm (1906 *vide* Oudemans 1917b) also noted that other remains of the dodo (head, upper jaw, leg) were present in the museums of Haarlem, London, Copenhagen and Prague. Oudemans contacted Eugène Dubois, conservator of the Teylers Stichting in Haalrem, who replied on 9th February 1916 that nothing was known of any dodo head or feet in Haarlem (Oudemans 1917b). Chambers's Encyclopædia (Anon. 1896) also erroneously listed dodo bones as being at Haarlem.

Zoölogisch Museum, Universiteit van Amsterdam

Zoological Museum Amsterdam, University of Amsterdam, Mauritskade 61, P.O. Box 94766, 1090 GT Amsterdam, The Netherlands. Bird Department.

Raphus cucullatus

Information from the ZMA website [http://ip30.eti.uva.nl/zma3d/index.html accessed 11 July 2005] and Tineke G. Prins (pers. comm., 12th March 2008).

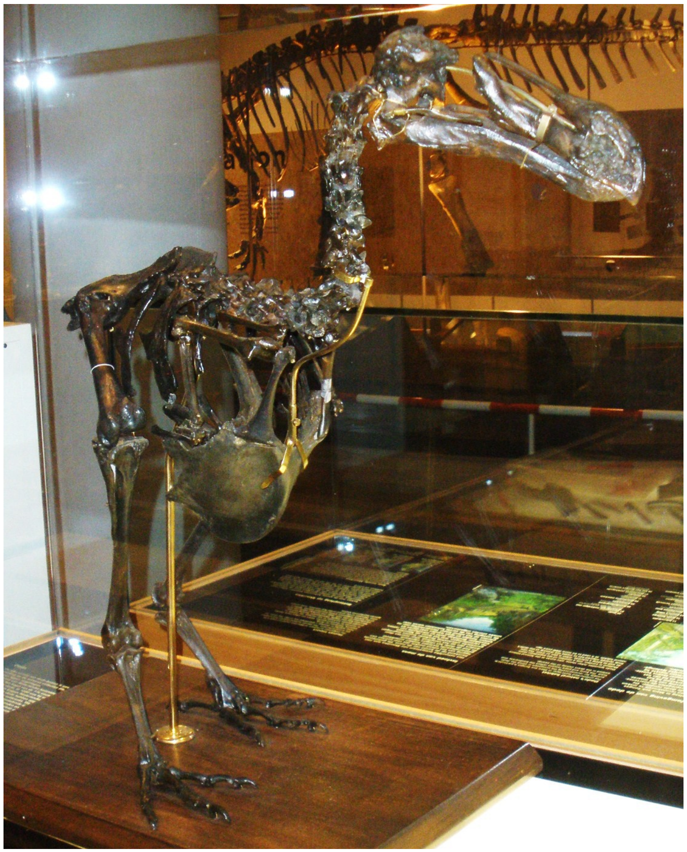
ZMA nr. 53380: plaster cast of a skeleton. Mounted. Original bones found on Mauritius (±1900)

ZMA nr. 53382: plaster cast of the Tradescant head. Originally part of the Vrolik Collection at Amsterdam (see below) prior to 1865. Donated, with other zoological specimens, to the Zoölogisch Museum, Universiteit van Amsterdam.

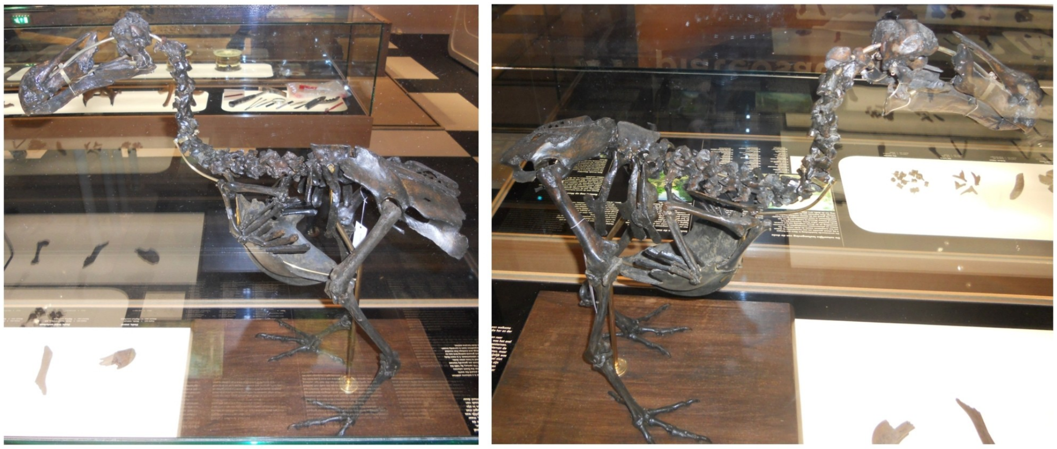
ZMA nr. 55626: plaster cast of the Tradescant foot (Tineke G. Prins (pers. comm., 2nd April 2008)

ZMA nr. 55691: cast of the Delft skeleton (but with some elements differing, for example, the fourteenth vertebra and notarium: pers. obs.). Original bones found on Mauritius (±1900). This skeleton was made by the ZMA and is on display at Naturalis, Leiden (Hein van Grouw, pers. comm., 15th May 2008), along with bones found during the recent Mare aux Songes excavations.

In 1862, the predecessor of the ZMA received a cast of the Prague beak from Antonn Frič; this cast is not now present (ZMA website).



ZMA nr. 55691, on display at Naturalis, Leiden (© Ghedoghedo, 13th August 2011).



ZMA nr. 55691, on display at Naturalis, Leiden (© Bianca Bueno, 26th September 2010).

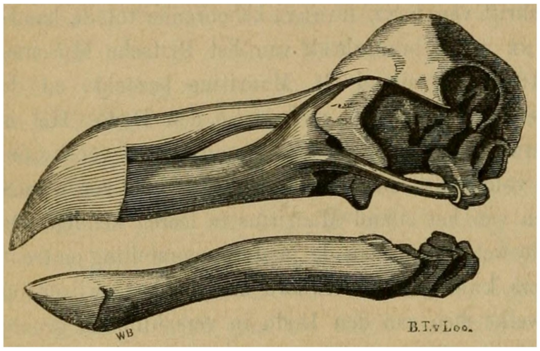
ZMA 53380, 53382 and 55626 were made by the museum exhibition taxidermist Jan Hakhof for the 1995 exhibition "Het Lot van de Dodo" ["The Fate of the Dodo"] (arranged by Ben van Wissen) which opened at the ZMA on 13th April 1995 (Van Wissen 1995; Staub 1996; ZMA website; Tineke G. Prins, pers. comm., 12th March 2008). The Delft skeleton is no longer in the ZMA collection and has been returned (Tineke G. Prins, pers. comm., 12th March 2008).

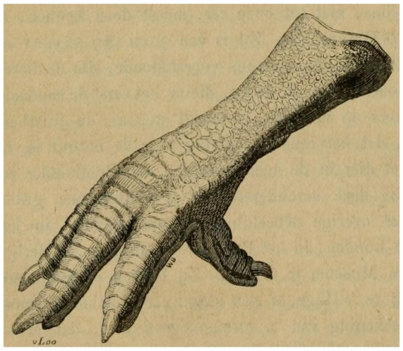
At the meeting of the Koninklijke Akademie van Wetenschappen, held on 29th April 1864, on the occasion of the reading of his essay "Over eene nieuw ontdekte afbeelding van de Dodo (Didus ineptus L.)" by Hendrik Christian Millies, a cast of the Tradescant head was displayed, brought by Jacob Gijsbertus Samuël van Breda (Millies 1865).[109]

Musée Vrolik[110]

In 1831 Willem Vrolik became a professor of anatomy, physiology and natural sciences at the Athenaeum Illustre (University of Amsterdam), and remained there the rest of his career.

The Catalogue of the Collection of Human Anatomy, Comparative and Pathologic of Messrs. Ger. and W. Vrolik lists: "252. 10. Cast in plaster of the foot of the Dodo – Didus ineptus – ." (Dusseau 1865, p.153).





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[109] Jacob Gijsbertus Samuël van Breda (1788-1867). Professor of Zoology and Geology at Leiden. Head of the Palaeontological and Mineralogical Cabinets of the Teylers Museum.

[110] The Musée Vrolik was founded by Gerardus Vrolik (1775-1859) and his son Willem (1801-1863). The collection was purchased in 1869 by a commission of the citizens of Amsterdam and offered to the city to be placed in the Athenaeum Illustre. The zoological portion came into the possession of 'Artis' (Engel 1986). A catalogue of the collection was completed by Dusseau in 1865.

Casts of the Copenhagen dodo skull and BM foot (Vrolik 1853, p.182) (‘WB’ “B.T.v Loo.”).

National Museum of Natural History, Leiden (Naturalis)

National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands. Known until 1988 as the Rijksmuseum van Natuurlijke Historie.

Catalogue letters from Van Oort (1907).

Raphus cucullatus
a. Left tarsometatarsus. “Didus ineptus cat. a”
b. Left tarsometatarsus
c. Right tarsometatarsus. “Didus ineptus cat. c”
d. Right tarsometatarsus
e. Left tibiotarsus
f. Left tibiotarsus
g. Right tibiotarsus (damaged proximally)
h. Right tibiotarsus (damaged proximally, lacking proximal end). “Didus ineptus cat. h”
i. Left femur
k. Right femur
l. Plaster cast of the Copenhagen skull and mandible. Nineteenth-century
m. Plaster cast of the Tradescant foot. Presented by Duncan, 1847
Note: a-k were presented by H. Slater, St. Catherine’s College, Cambridge
Cast of the Prague specimen (Lambrecht 1933)[111]

The two femora, four tibiotarsi and four tarsometatarsi are on display (Treur 2002).

An exhibition of specimens from the 2005-2006 Mare aux Songes excavations was held at Naturalis from December 2005 to January 2006. The dodo specimens exhibited comprised (Marijke Besselink, pers. comm., 4th July 2012):
Rostrum (MAS 2005-11)
Symphysis and distal end of left mandibular ramus (MAS 2006-64-7)
Scapula (MAS 2005-9)
Humerus (MAS 2005-7)
Carpometacarpus (MAS 2005-10)
Femur (MAS 2005-6)
Tibiotarsus (MAS 2005-5)
Pedal phalanx (MAS 2006-61-6)
Mounted cast of the Delft skeleton (ZMA nr. 55691; loaned from Zoölogisch Museum Amsterdam)

An exhibition on the dodo, organized by Peter Koomen, was held at Naturalis from 6th June to 27th October 2002 (Treur 2002).

Pezophaps solitaria
a. (1a) Fourth cervical vertebra (♀)
b, c, d. (1b, c, d) Cervical vertebrae, probably the 7th, 10th & 12th (♀?)
e. (2b) Synsacrum (♀)
f. (2a) Right portion of pelvis “pelvis pars. os. isch” (♀?)
g. (3b) Left coracoid, lacking distal end (♀)
h. (3a) Right scapula
i. (4) Left humerus (♀) “cat i.”
k. Left radius [“5 Ulna sinist ♂”]
l. (6) Left femur (♀) “cat. l.”
m. (7) Left tibiotarsus (♀)

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[111] Lambrecht (1933): “In Leyden Tarsometatarsi und Gipse von Kopenhagen, Prag (VAN OORT)” (p.598).

n. (8) Left fibula (♀)
o. (9) Left tarsometatarsus (♀)
p. (10) pedal phalanx 1 of digit III (♀)
q. (11) pedal phalanx 1 of digit II (♀)
r, s, t, u, v. Plaster casts of left tarsometatarsus, proximal portion of right tarsometatarsus, distal portion of left tibiotarsus, left femur & right femur from the Andersonian Museum, Glasgow. Presented by W. Jardine.

Note: a-q were presented by Alfred Newton in 1868. A label accompanying the bones reads:

> *Didus solitarius ,*
> *1a, vert. quart (♀?) 1.b. vert. sept? (♀?) 1c, vert. decim.? (♀?) 1d, duodec.*
> *vert.? (♀?) 2a, pelvis pars. os. isch♀?2.b.os. sacrum♀3a, scap. pars.* [?]
> *3b, os. coracoid♀ 4. humerus sinist. ♀. 5 Ulna sinist ♂. 6 Femur ♀*
> *7. Tibia ♀, 8 Fibula ♀. 9. Tarsus, ♀. 10. phalanx.prim.digit. med. ♀11. phal.*
> *prim. dig. interioris. ♀.*
> *Pr. p. Prof. Newton, 1868.*

Edward Newton brought Alfred Newton "from Mauritius a fine series of dodo bones [.] Newton generously sent some as a gift to Professor Schlegel of Leyden, who had been one of his chief opponents as regards the columbine affinities of the bird" (Moore 1912, p.11). As the above-listed dodo bones were presented by H. Slater, this may be a mistake for the solitaire bones, which were donated by Alfred Newton.

Dodo and solitaire bones were figured in: Purcell (1999), nos.32 and 35 respectively. *Pezophaps* bones figured in: Grihault (2007, p.96).

Mineralogisch-Geologisch Museum, Delft

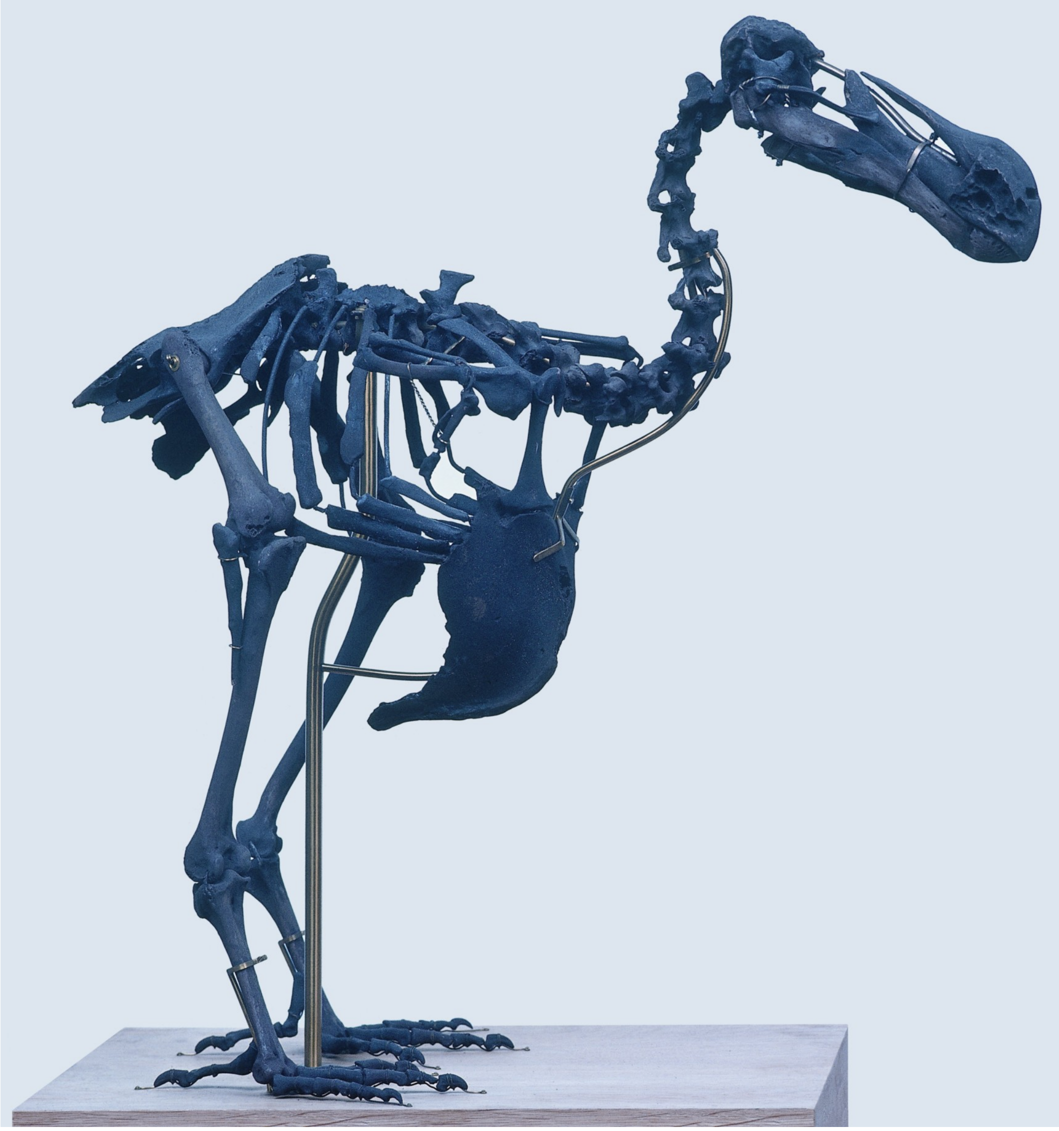
Mineralogisch-Geologisch Museum (Gebouw voor Mijnbouwkunde) of the University of Technology, Mijnbouwstraat 120, 2628 RX, Delft, The Netherlands

Raphus cucullatus

AG 9998 skeleton mentioned by Schuyf (1970) and described by De Wit (1940) and Brom & Prins (1988). In early 1940 (De Wit 1940) it was bought from Maison Deyrolle in Paris, a firm of taxidermists, by J. H. F. Umbgrove, Curator of the Mineralogisch-Geologisch Museum. According to Deyrolle, it was composed of bones excavated by an unknown Frenchman around 1900 (De Wit 1940; the Frenchman was probably Etienne Thirioux). The skeleton was borrowed in the 1990s by Leiden Natural History Museum for a small exhibition. It was formerly on long-term loan to the Zoological Museum of the University of Amsterdam (Van Wissen 1995; Fuller 2002), who used it for reference for a reconstruction. It was subsequently used in their dodo exhibition (Jan den Hengst, pers. comm., 7th July 2001). The skeleton was later moved to the Department of Applied Earth Sciences (now called the Department of Geoscience Engineering), Delft University of Technology, whilst the Delft Geological Museum was closed during construction work to become part of the Science Center (Maaike van Tooren, pers. comm., 18th March 2008). It is still housed there, in the office of Maaike van Tooren, as the fate of the Geological Museum is unclear (*ibid*., pers. comm., 18th April 2012).

The skeleton is made up of original bones (mandible, 3rd-13th cervical vertebrae, notarium, 1st-15th synsacral vertebrae, sternum, left scapula, damaged pelvis, both femora, tibiotarsi and tarsometatarsi) and plaster casts from a skeleton in the Mauritius Institute (cranium, maxillae, premaxillae, jugal arches, quadrates, atlas, axis, 14th and 18th vertebrae, vertebral and sternal ribs, coracoids, right clavicle, right scapula, humeri, ulnae, radii, carpometacarpi, proximal phalanx of major digit of both sides, fibulae and pedal phalanges). The transverse processes of the notarium are restored in plaster and its intervertebral foramina are closed (De Wit 1940). Measurements of the skeleton are given in the Anatomy section.

Figured: De Wit (1940, p.199); Brom & Prins (1988, figs.1, 2); Van Wissen (1995, p.83); Den Hengst (2003, p.103); Van Oppen (2003); Rao (2006, p.220)?



AG 9998 (© Jan den Hengst).

Natuurmuseum Rotterdam

Natuurmuseum Rotterdam, Westzeedijk 345 (in het Museumpark), 3015 AA Rotterdam, The Netherlands

Raphus cucullatus

Cast of the skull and mandible of the dodo. The cast was acquired in 2002, along with casts of the skulls of *Castoroides ohioensis* and *Smilodon fatalis*, purchased using a donation given to mark the 75th anniversary of the museum. These specimens were provisionally exhibited in a special showcase (Moeliker *et al*. 2002). Figured: Moeliker *et al*. (2002, p.24: photo: Jaap van Leeuwen).

Université de Gand

Museum of Zoölogy, Faculty of Science of the University of Ghent, Karel Lodewijk Ledeganckstraat, Ghent, Belgium

Raphus cucullatus

"4. Cast in plaster of a [tarso]metatarsus of the Dodo. – Didus ineptus, L. 2003" (Poelman 1868, p.5).

"2. Cast in plaster of the head of the Dodo. – Didus ineptus, L." (Poelman 1868, p.13).

These specimens are still in the Ghent collections, but no further information in known about them (Dominick Verschelde, pers. comm., 15th March 2012).

Institut royal des Sciences naturelles de Belgique, Brussels

Institut royal des Sciences naturelles de Belgique, Rue Vautier 29, B 1000 Brussels, Belgium

Raphus cucullatus

11.714 almost complete skeleton (Verheyen 1957), probably composite. It is around 95% complete, with only part of the skull broken, and was bought in Paris from Maison Deyrolle. It arrived at the museum on 16th June 1938 (Georges Lenglet, pers. comm., 7th February 2001; 14th March 2012). It was studied by Verheyen (1957).

Plaster cast of the head and foot (Lambrecht 1933; Georges Lenglet, pers. comm., 7th February 2001). In a letter to Strickland dated 20th September 1845 (F-262), Bernard Leonard Dubus de Gisignies, writing from the Musee Royal d'Histoire Naturelle de Belgique, thanked the former for the donation of a plaster cast of the Tradescant head (Rookmaaker 2010).

Aquarium-Muséum de l'Université de Liège

Aquarium-Museum de l'Universite de Liège, Institut de Zoologique Edouard van Beneden, 22 Quai Van Beneden B-4020 Liège, Belgium. (Musée de Zoologie de l'Université de Liège)

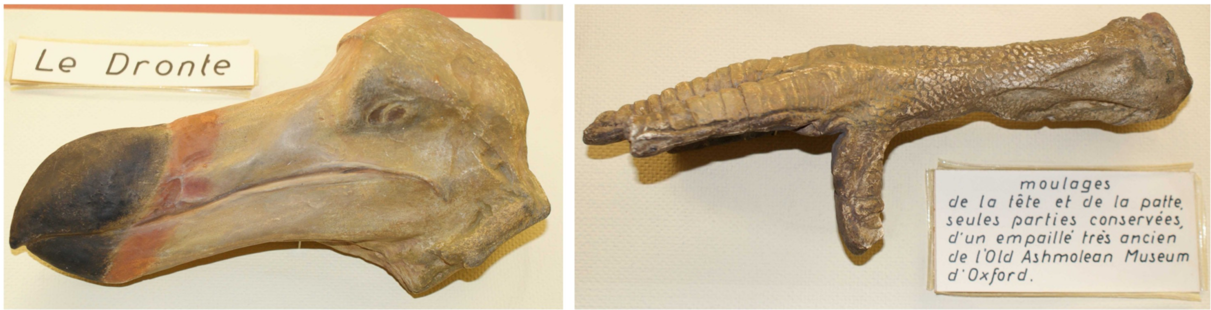
Raphus cucullatus

Data in part from Marie Bournonville (pers. comm., 15th March 2012).

RE3456 coloured cast of the Tradescant head (made prior to dissection).

RE3457 cast of the BM foot

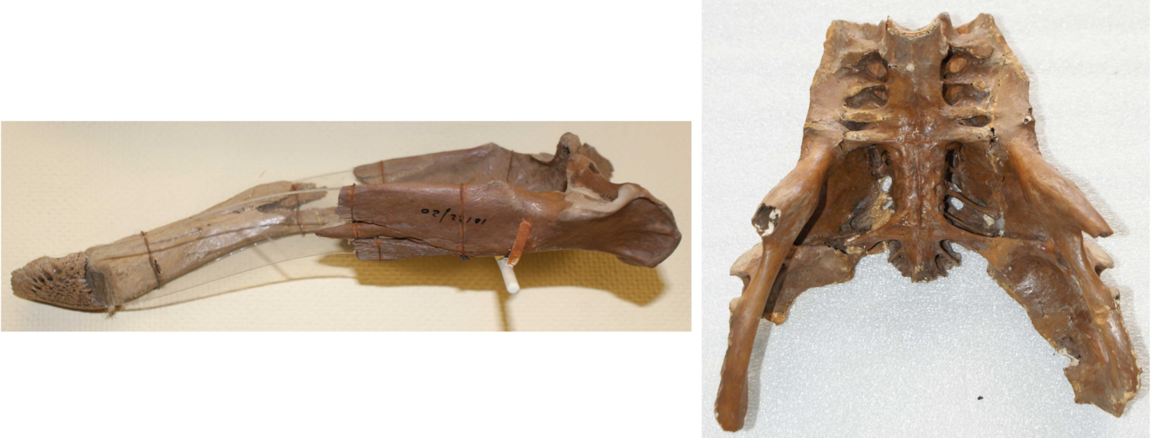
These specimens were registered in June 1872 as museum gifts from Édouard van Beneden (1846-1919) of the Universite de Liège (Christian J. Michel, pers. comm., 17th September 2010). Loneux (2006) listed a skull (copy) for *Raphus cucullatus*, which presumably refers to the cast of the Tradescant head. The label accompanying the casts reads: "moulages de la tête et de la patte, seules parties conservées, d'un empaillé très ancien de l'Old Ashmolean Museum d'Oxford" [casts of the head and of the foot, sole preserved parts of a very old stuffed specimen of the Old Ashmolean Museum of Oxford].


Le Dronte
moulages
de la tête et de la patte,
seules parties conservées,
d'un empaillé très ancien
de l'Old Ashmolean Museum
d'Oxford.

RE3456 and RE3457 (© Aquarium-Museum de l'Universite de Liège).

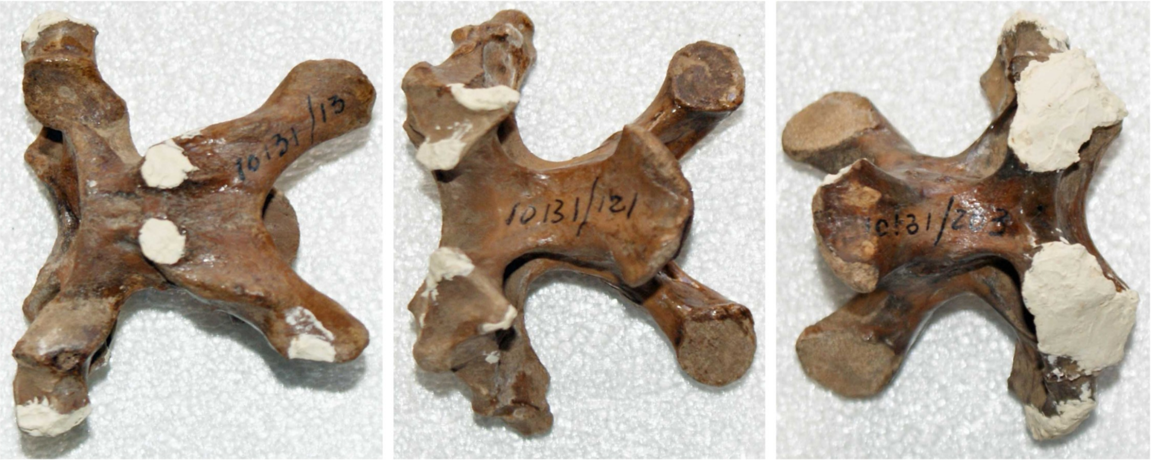
02/22101 mandible (symphysis & right ramus, caudal ends of left and right rami, mounted). "02/22101" in black ink on lateral face of caudal left ramus)

10129/11 pelvis (damage to proximal extremity of ilia, lacking caudal end)

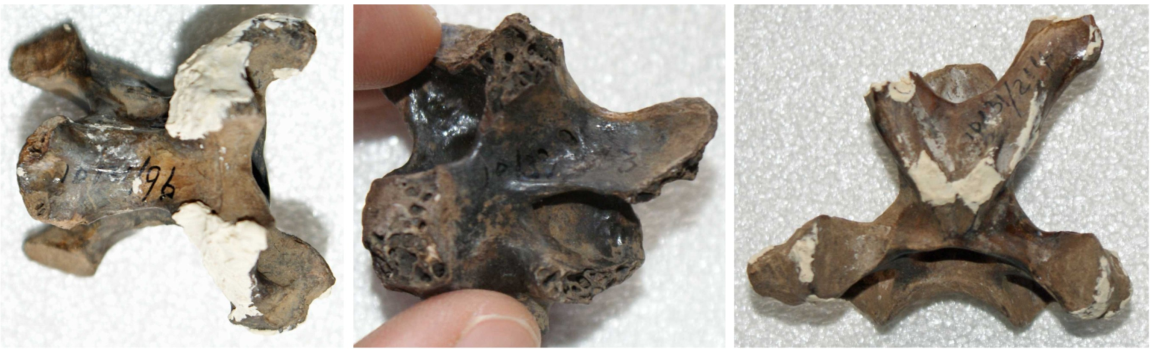


02/22101 and 10129/11 (© Aquarium-Museum de l'Universite de Liège).

10131/13, **10131/96**, **10131/121**, **10131/203**, **10131/214** five mid-cervical vertebra (repaired with plaster)
10131/163 12th cervical vertebra (damaged at extremities)



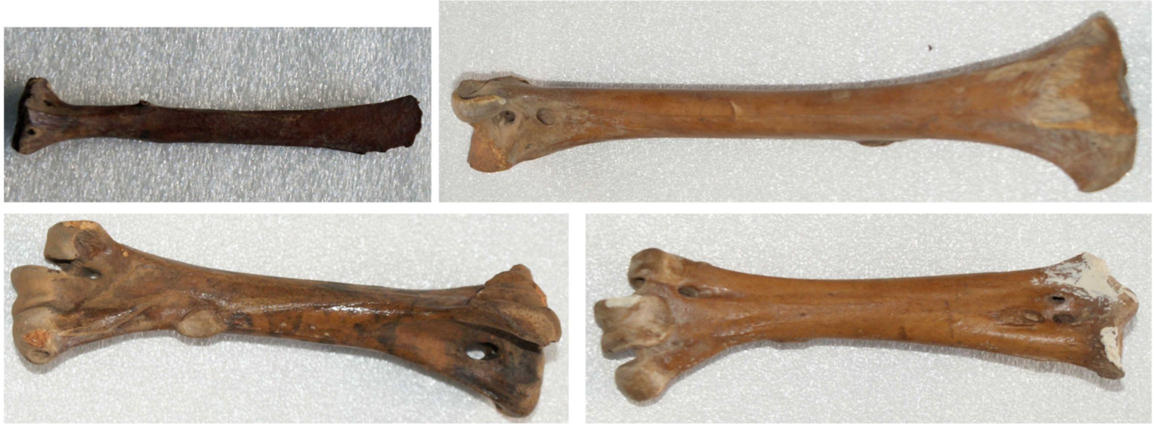
Cervical vertebrae: 10131/13, 10131/121 and 10131/203 (© Aquarium-Museum de l'Universite de Liège).



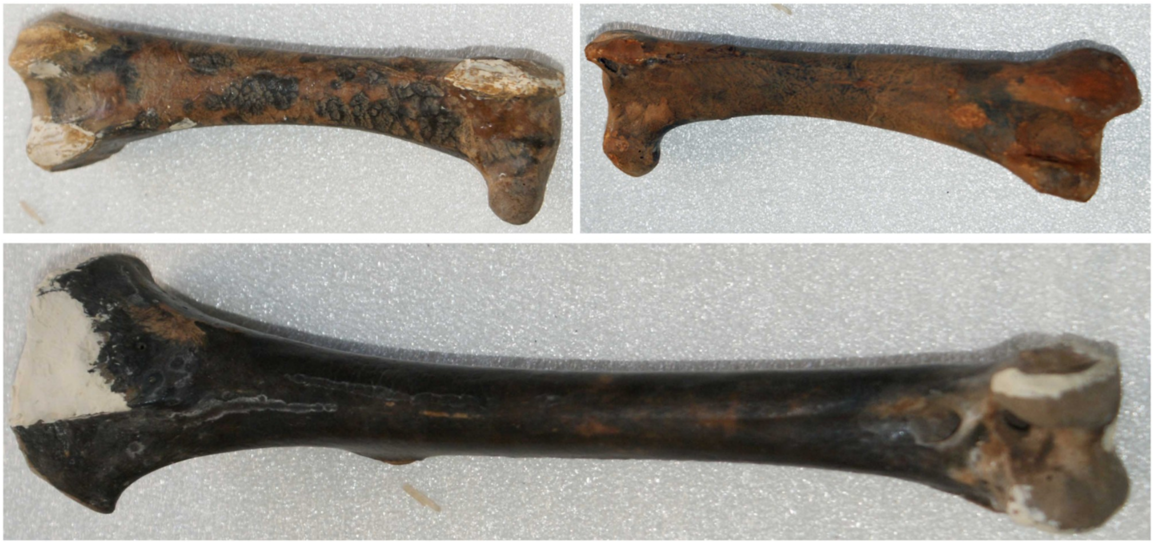
Cervical vertebrae, including 12th (10131/163: *middle*) (© Aquarium-Museum de l'Universite de Liège).

left scapula (damaged at distal extremity)
pelvis
left femur
right femur (some plaster repair)

left tibiotarsus
right tibiotarsus (blackish; some plaster repair proximally and distally)
left tarsometatarsus
right tarsometatarsus (some plaster repair proximally and to trochleae)



Left scapula, left tibiotarsus, left and right tarsometatarsi (© Aquarium-Museum de l'Universite de Liège).



Right and left femora and right tibiotarsus (© Aquarium-Museum de l'Universite de Liège).

Note: the numbers assigned to the dodo bones above, and written on them, do not belong to the Aquarium-Muséum de l'Université de Liège (the catalogue numbers of this museum are of the format comprising two or three letters and a number; Marie Bournonville, pers. comm., 22nd March 2012).[112] Nothing is known about the bones and they were apparently found at the museum about 15 or 20 years ago. The casts and the mandible are currently on display (Marie Bournonville, pers. comm., 15th March 2012). Figured: http://www.ulg.ac.be/museezoo/img29.htm

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[112] However, bones also bearing numbers of the format "10131/" are found in the collections of the USNM (no.10131), UMMZ (209033) and YPM (ORN.103123). These would appear to have originated from the Mauritius Institute Collections.

Zoologisches Museum, Kiel

Zoologisches Museum der Christian-Albrechts-Universität, Hegewischstrasse 3, D-24105 Kiel, Germany

Karl August Möbius, a former director of the museum, acquired the dodo and solitaire material, which was donated by Edward Newton, when on his expedition to the Seychelles and Mascarenes in 1874 (Ottow 1952; Lina Block, pers. comm., 8th February 2008). During the Second World War the bones were taken, still in their original crates into an air-raid shelter for safety (Lüttschwager 1961). Pieper (1987) noted the lack of pectoral elements of the dodo in the collection and wondered whether they were ever part of the Kiel collection, or were later lost.

In 1986 Harald Pieper, from Kiel, gave a "Sammlungsverzeichnis der knochen von Dronte, *Raphus cucullatus* (Linnaeus, 1758) und Einsidler, [*sic*] *Pezophaps solitarius* (Gmelin, 1788)" [Collection-catalogue of the bones of the dodo, *Raphus cucullatus* (Linnaeus, 1758) and solitaire, *Pezophaps solitarius* (Gmelin, 1788)] in the Zoological Museum of Kiel (Mourer-Chauviré 1987, p.16).

Raphus cucullatus

A 4295/1-57:

1-5 mandible fragments
6 vertebra
7-14 pelvic fragments
15-18 ribs
19-20 sternum fragments
21-26 six femora [one femur figured by Lüttschwager (1961, fig.17)]
27-34 eight tibiotarsi
35-44 ten tarsometarsi
45 phalanx
47-57 various fragments (some probably not from *Raphus*), among them coracoid 49 and tarsometatarsus 54, which was stuck on 44.

Pezophaps solitaria

A 4294/1-244:

1-39 cervical vertebrae
40-58 vertebrae and pelvis (including 55a-c thoracic vertebrae)
59-104 ribs
105-108 four sterna
109-117 fragments of sternum
118-123 coracoid
124-129 scapulae
130-131 two humeri (♂)
132-134 three humeri (♀)
135 humerus (♂)
136-138 three humeri (♀)
139 humerus (♂)
140 humerus (♀)
141 ulna (♀)
142 ulna (♂)
143-145 three ulnae (♀; two are pathologic)
146 ulna (♂)
147 radius (♀)
148-149 two radii (♂; one is pathologic)
150-151 two radii (♀)
152 radius (♂; pathologic)
153-154 two carpometacarpi (♂; both pathologic)
155 carpometacarpus (♀, without an exostosis, but with slightly defective proximal end). Figured: Ottow (1952, fig.1)
156 carpometacarpus (♂; pathologic)

157 femur (sex indet.)
158 femur (♂)
159 femur (♀)
160 femur (♂)
161-167 seven femora (♀)
168-169 two femora (♂)
170-172 three femora (♀)
173-179 seven tibiotarsi (♀)
180 tibiotarsus (♂)
181-189 fibulae
190 tarsometatarsus (♂)
191-196 six tarsometatarsi (♀)
197 tarsometatarsus (♂)
198 tarsometatarsus (♀)
199 tarsometatarsus (♂)
200 tarsometatarsus (♀)
201-202 two tarsometatarsi (♂)
203-205 fragments of tarsometatarsi
206-211 metatarsals (210-211 taken out for the mounted skeleton)
212-218 phalanges
219-225 various fragments (thereunder metatarsal 221)
234-244 various fragments (some probably not belonging to *Pezophaps*)

A 3166 skeleton on display (including A 4294/210 and 211). It was constructed in 1923 by Adolf Remane[113] in Kiel from bones collected in 1874 on Rodrigues by Karl Möbius and was reassembled by Dieter Kolligs in 1974 (Luther 1970; Pieper 1987; Lina Block, pers. comm., 8th February 2008). Differences between the two mounts can be seen by comparing Lüttschwager (1961, fig.16) and Pieper (1987, frontispiece); these include a slightly different posture, lack of sternal ribs and damage to the caudal portion of the pelvis in the 1974 mount. Figured: Lüttschwager (1961, figs.16, 27? 28?); Pieper (1987, frontispiece [Photo: R. König])

A 6959 fragmentary cranium (was not in the material mentioned above, but under other bird bones)

Ottow (1952) listed the following Kiel solitaire specimens: male and female specimens, some complete, some partially damaged or fragmentary: one damaged cranium ('Gehirnschädel'), one quadrate, one upper beak (premaxilla), five mandibular fragments, 38 vertebrae from all regions of the spine, four notaria, 46 ribs and rib fragments, four sterna, six scapulae, five coracoids, nine humeri, four ulnae, four radii, two carpometacarpi, three pelves and three parts of the synsacrum, fourteen femora, eight tibiotarsi, nine fibulae, twelve tarsometatarsi and thirteen phalanges of different toes. Plus a large number of bone fragments. This listing differs somewhat from Pieper's, above, although it was made prior to the 1974 reassembly of the mounted skeleton (A 3166).

Ottow (1952) described the following pathologic Kiel solitaire specimens: • a male carpometacarpus with an exostosis. Figured: Ottow (1952, fig.1). • an anterior pedal phalanx (position and sex undetermined). 2.3cm long, with an exostosis and a slight dysplasia. Figured: Ottow (1952, fig.2). • a right female femur with a small exostosis. Figured: Ottow (1952, fig.3). These specimens are presumably included in the above catalogue listing.

Bones figured by Lüttschwager 1961, figs.17 (♂ and ♀ femora), 18 (?18th vertebra, ulna with swelling of shaft, exostotic pedal phalanx), 19 (three ♂ and one ♀ carpometacarpi), 20 (humeri: one ♀, one ♂ with healed break of shaft; radius and ulna with exostosis and alteration),[114] 21 (♂ and ♀ tarsometatarsi).

The former museum director, Karl Möbius, received the solitaire bones from Edward Newton as a gift when the former went on an expedition to Mauritius in 1874. The bones survived the bombing of World War II as the Curator of Bird Collections at the museum took the bones, still in the crates that they had been brought from Mauritius, into his personal air-raid shelter, placing then under his bed (Lüttschwager 1961).

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[113] Adolf Remane (1898-1976). In 1923 he became Scientific Assistant under W. von Buddenbrock in Kiel.

[114] The humerus at the top left of the figure is not from a juvenile *Pezophaps*, but from a tropic bird (*Phaethon lepturus*) (Pieper 1987).

Hamburg

Biozentrum Grindel und Zoologisches Museum, University of Hamburg, Martin-Luther-King-Platz 3, 20146 Hamburg, Germany

Raphus cucullatus

Skeleton. Acquired shortly before the First World War (Mertens 1925). No longer present in the collection (Cordula Bracker, pers. comm., 3rd April 2012).

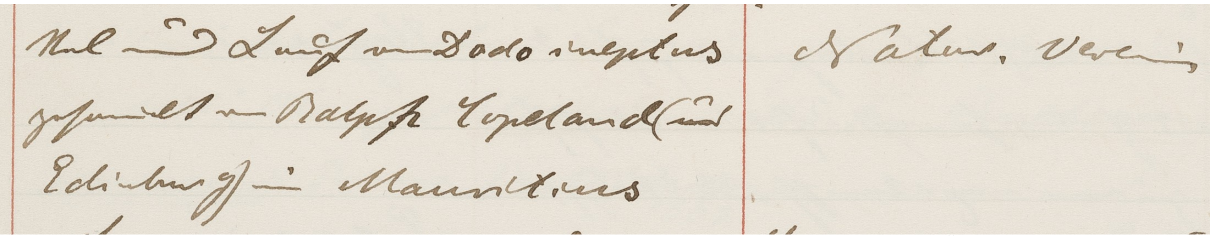
No specimens of *Pezophaps* (Cordula Bracker, pers. comm., 26th May 2009).

Übersee Museum, Bremen

Übersee Museum, Bahnhofsplatz 13, 28195 Bremen, Germany

Raphus cucullatus

Pelvis, left femur, left tibiotarsus, left tarsometatarsus (Peter-Rene Becker, pers. comm., 14th March 2008). Under the heading "Gifts for the Collections", Anon. (1890) listed "Mr. R. Copeland at Edinburgh: Bones of the Dodo or Dudu (Didus ineptus L.) from Mauritius" (p.16). Ralph Copeland[115] might have been a friend of Gustav Hartlaub,[116] curator of the bird collection (Peter-Rene Becker, pers. comm., 14th March 2008). An entry in the catalogue of gifts for 1889/90 reads: "[?] und Lauf von Dodo ineptus gesammelt von Ralph Copeland (aus Edinburg) in Mauritius. Naturw. Verein" [[?] and leg of Dodo ineptus collected by Ralph Copeland (from Edinburgh) in Mauritius. Naturw. Verein] (Michael Stiller, pers. comm., 2nd April 2012). The bones have no catalogue or accession numbers (*ibid*.).



[illegible] und Lauf von Dodo ineptus
gesammelt von Ralph Copeland (aus
Edinburg) in Mauritius

Naturw. Verein

The entry for the "leg of Dodo ineptus" in the catalogue of gifts for 1889/90 (© Übersee-Museum Bremen).

Blasius (1880) also mentioned "a set of plaster casts of the dodo remains kept in the English and Danish museums" at Bremen (p.38). The British specimens are listed in the accessions register from 1840, but are no longer present in the collection, perhaps having been lost during the Second World War (Peter-Rene Becker, pers. comm., 27th March 2009). The entry in the register reads:

1840

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[115] Ralph Copeland (1837-1905). English physicist and astronomer. Copeland was on Mauritius for the Transit of Venus in December 1874. He arrived on 4th August on the yacht *Venus*.

[116] Carl Johann Gustav Hartlaub (1814-1900). In 1840 he began to collect birds, which he donated to Bremen (Rookmaaker 2010).

Geschenke.	*Geber.*
Den Kopf und Fuß der Dronte /:Didus ineptus:/ in Gyps-Abgüßen, nach den Brittischen Museum in London und Ashmolean Museum in Oxford aufbewahrten Überresten dieses untergegangenen Vogels.	*Herr Dr. med: Gust: Hartlaub.*

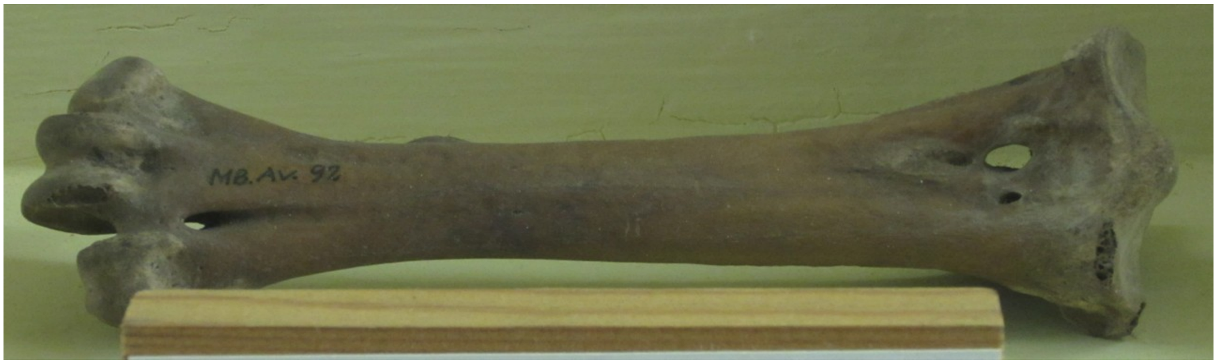
[Gifts. The head and foot of the Dodo /:Didus ineptus:/ in plaster casts, from the remains of this lost bird kept in the British Museum in London and Ashmolean Museum in Oxford. Donor. Mr. Dr.med: Gust[av] Hartlaub].

Humboldt University Zoological Museum, Berlin

Museum für Naturkunde Berlin, Invalidenstr. 43, D-10115 Berlin, Germany

Raphus cucullatus

ZMB 2000/3494 (old accession number B457) pelvis**,** left tibiotarsus, left tarsometatarsus. Mauritius. Collector: Burckhardt (Hachisuka 1953; Manfred Ade, pers. comm., 11th January 2002). The package of bones arrived in September 1907 (Sylke Frahnert, pers. comm. 19th December 2007). The tarsometatarsus is currently on display (June 2012) and bears "MB.Av. 92" in black ink on the distal cranial face.



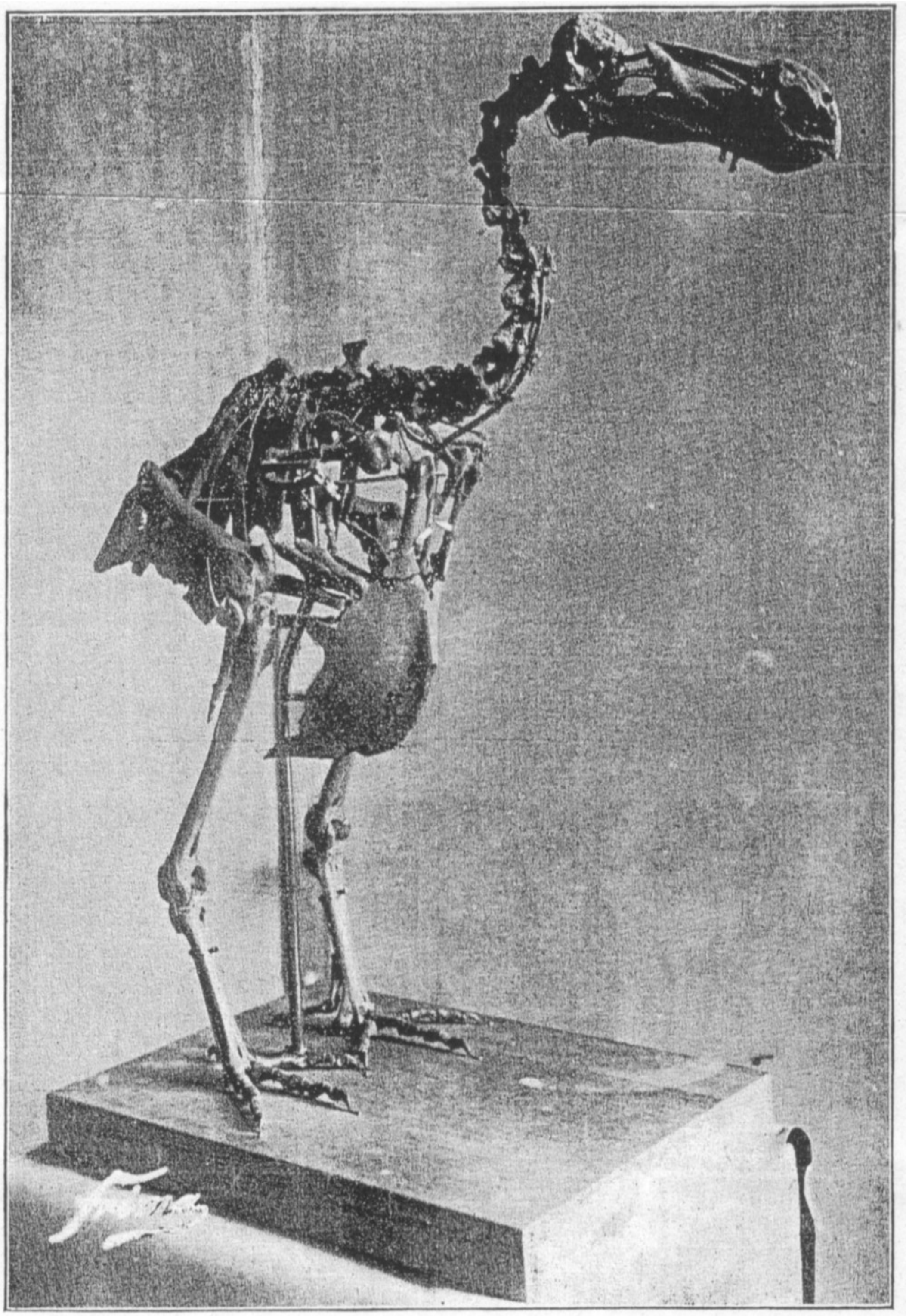
ZMB 2000/3494 (© Martin Kalfatovic, 8th June 2012).

Museum für Naturkunde, Magdeburg

Museum für Naturkunde, Otto-von-Guericke Str. 68-73, 39104 Magdeburg, Germany. (Magdeburg Museum für Natur- und Heimatkunde: Mertens 1925).

Raphus cucullatus

Almost complete skeleton, with only the toe bones replaced (Mertens 1925). However, several of the bones (*e.g.* cranium) look similar to those of other skeletons and may have been casts; the skeleton appears to be a Deyrolle production (pers. obs.). The colour of the bones is dark brown (Mertens 1925). In January 1925 the management of the museum purchased the skeleton, which was supplemented with true-to-nature reproductions of bones (*ibid*.). Listed by Ottow (1949). Height 65cm, overall length from the upper beak point to the end of the pelvis 87cm (Mertens 1925). Unfortunately, by the end of 1945 the skeleton had disappeared (Hans Pellmann, pers. comm., 3rd April 2008). Figured: Mertens (1925, pl.iv).



Magdeburg dodo skeleton (Mertens 1925, pl.iv).

Museum für Mineralogie und Geologie, Dresden

Senckenberg Naturhistorische Sammlungen Dresden, Museum für Mineralogie und Geologie, Königsbrücker Landstr. 159, D - 01109 Dresden, Germany

Raphus cucullatus
(information courtesy of Markus Wilmsen, pers. comm., 18th November 2011, 6th December 2011)
AFQ 3 cast of the Copenhagen skull and mandible. Label:

> *Didus ineptus L.*
> *– Dronte – Dodo –*
> *Modell d. Exempl. in Museum*
> *N. 2. z. Kopenhagen.*

AFQ 4 cast of the Prague beak. The accompanying labels read:

> *Didus ineptus L.*
> *– Dronte, Dodo. –*
> *Modell d. Oberkiefers im böhm*
> *N. 3. Museum z. Prag.*

> Didus ineptus, L.
> The Dodo. – Der Dronte.
> Copie eines Oberkiefers nach dem Originale des
> böhmischen Museums zu Prag.
> Von Custos Corda unter alten Vorräthem des Museums gefunden im J. 1847.

In a guide to the Königliche Mineralogische Museum, Dresden, are listed models ('Modelle') of the Copenhagen, Oxford and Prague dodo specimens, which were displayed near the *Homo sapiens* exhibit at the entrance to the hall allocated to the "Quaternary Group or Diluvium and Alluvium" ("Geological Collections. Cainozoic time") (Geinitz 1873, p.73).

Museum für Tierkunde, Dresden

Senckenberg Naturhistorische Sammlungen Dresden, Museum für Tierkunde. Ornithology Section

Raphus cucullatus
Information from Martin Päckert (pers. comm., 16th April 2012).
MTD C12854 casts of bones from Liverpool Museum, 1890.
MTD C12855 cast of the Tradescant head. Schmidt,[117] Darmstadt 1875.
MTD C12910 cast of the Copenhagen skull. Schmidt, Darmstadt 1875.

Skeleton Gallery, Free-Standing Cases. In one of the cases containing birds (235-238): "a cast of the skeleton of the Dodo of Mauritius, also extinct; behind, there is a picture of this bird. The skeleton of the Didunculus, a hook-billed ground-pigeon of Samoa (236)" (Fox 1897, p.89; V. Seidlitz 1892). It was formerly contained in the Königliches Zoologisches und Anthropologisch-Ethnographisches Museum, in south wing of the 'Zwinger', Zoologische Abteilung (Sammlung für Naturkunde). The zoological specimens of the Königliches Zoologisches und Anthropologisch-Ethnographisches Museum subsequently became part of the Museum für Tierkunde collections. Thus the skeleton might be the same as the casts of bones mentioned above (MTD C12854).

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[117] Probably Hofkonservator Schmidt of Darmstadt.

Wetterauische Gesellschaft für die gesammte Naturkunde zu Hanau

Wetterauische Gesellschaft für die gesammte Naturkunde zu Hanau, Schloßplatz 2, 63450 Hanau, Germany

Raphus cucullatus

Amongst the gifts received between the middle of August 1862 and 14th October 1863, it was mentioned that through the purchase from Preparator Wilhelm Schmidt in Offenbach am Main (see below) a "Plaster cast of a head of the Dodo (Didus ineptus) from the Museum at Oxford" was acquired (Anon. 1864c, p.xx).

The report of the *Wetterauischen Gesellschaft für die gesammte Naturkunde zu Hanau* for 1889 records in the section listing gifts: "2. From Head Conservator Mr. W. Schmidt at Darmstadt two plaster casts, head and foot of the Dodo" (Becker 1889, p.xiv).

In the Annual Report of the *Wetterauer Gesellschaft für die gesammte Naturkunde zu Hanau* from August 1858 to 1859 and August 1859 to 1860 it was reported that Rudolf Jäger, a teacher and corresponding member of the Wetterauischen Gesellschaft, donated a plaster cast of the BM foot on behalf of Louis Gremmer, a naturalist at Frankfurt (Anon. 1861, p.xi).[118]

The Wetterauische Gesellschaft possessed a museum until March 1945, when much of it (along with all its records) was destroyed by bombing (6th December 1944, 6th January 1945, 19th March 1945). As such, the cast, and any information pertaining to it, has been lost (W. Heinemann, pers. comm., 30th March 2012, 12th April 2012).

Naturhistorischen Museum, Offenbacher Verein für Naturkunde

Offenbacher Verein für Naturkunde (im Haus der Stadtgeschichte), Herrnstraße 61, Bauteil B, 2. Stock, im Hof links, 63065 Offenbach, Germany

Raphus cucullatus

In the catalogue of plaster casts in the Naturhistorischen Museum of the Offenbacher Verein für Naturkunde (Anon. 1873) are listed: "3) Didus ineptus, Head and Foot" (p.99). The following page is an advertisement for Wilhelm Schmidt's natural history plaster casts (see below), and this may be the origin for the above specimens.

Naturmuseum Senckenberg, Frankfurt

Naturmuseum Senckenberg, Senckenberganlage 25, D-60325, Frankfurt am Main, Germany. Vögel (Raum 107/108). Palaeontology Department.

Raphus cucullatus

SMF 17321 almost complete skeleton, with only a few supplemental plastic parts, set up in the exhibition collection. The skeleton was donated in 1912 by Ernst Creizenach (member of the Senckenbergische Naturforschende Gesellschaft).[119] Much of the skeleton is made up of casts (Creizenach 1913), such as the facial skeleton and cranium, vertebral and sternal ribs, humerus, ulna and radius, carpometacarpus and major phalanx of alar digit II, fibulae, and the pedal phalanges. Figured: Creizenach (1913, p.9).

Uncoloured plaster cast of the Tradescant head (prior to dissection, mentioned by Weinland 1863, Noll 1889)

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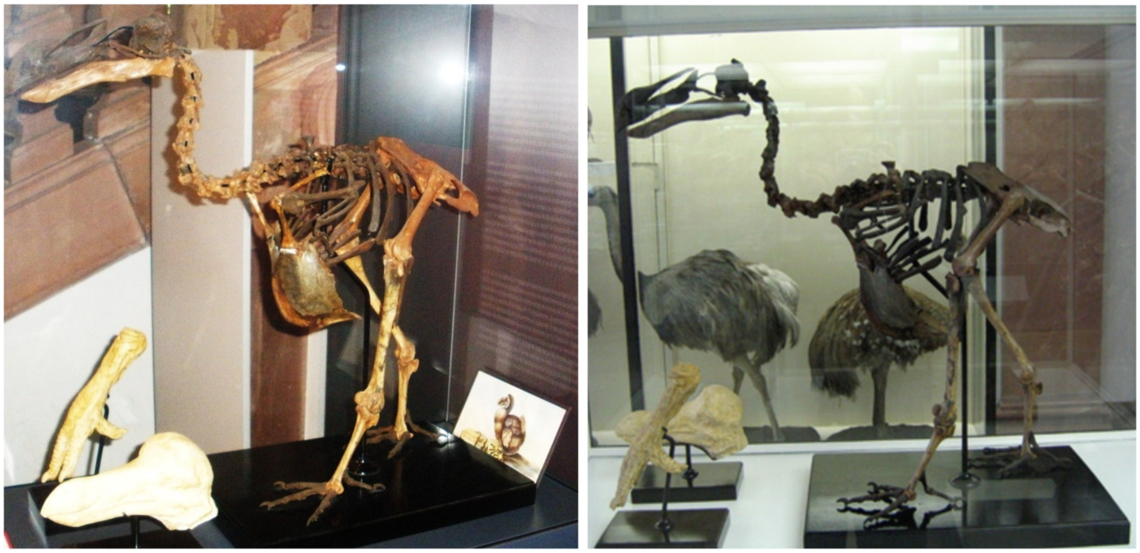
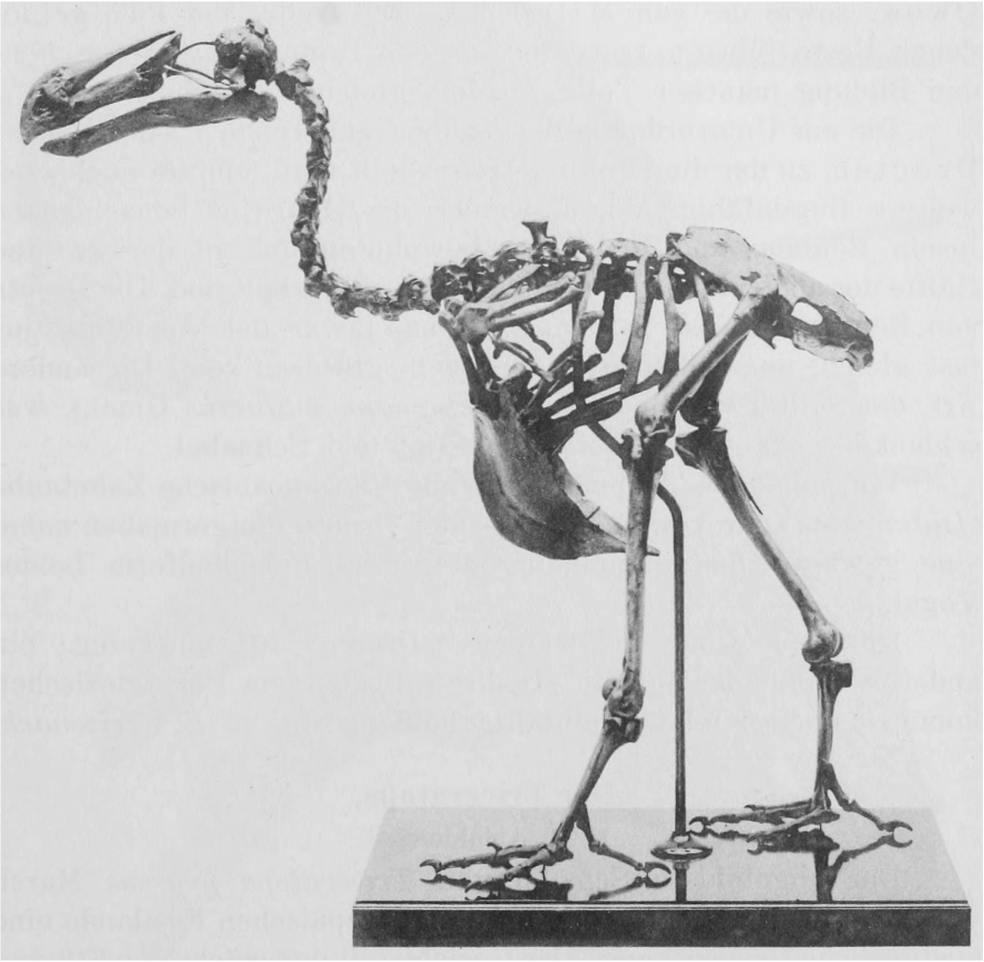
[118] "Lehrer Jäger Namens des Hr. L. Gremmer zu Frankfurt: einen Gypsabdruck oder Vogelfuss von Didus ineptus als Nachbildung aus dem britt. Museum (Untergegangene Vogelart) [Teacher [Rudolf] Jäger on behalf of Mr. L. Gremmer at Frankfurt: a plaster cast or bird foot of Didus ineptus as reproduction from the Brit. Museum (perished bird species)]."

[119] Dr. Ernst Creizenach, Krögerstr. 10, Frankfurt am Main.

Uncoloured plaster cast of the BM foot



SMF 17321 (left: © Ghedoghedo, 19th August 2011; *right*: © Edgar Hellfritsch, 2004).



SMF 17321 (Creizenach 1913, p.9).

Lambrecht (1933, p.598) also lists a plaster cast of the Copenhagen skull and a plaster cast of the Prague 'foot', both made in the Dresden Zwinger, and mentions that "here is also a plaster cast after a specimen in Liverpool?". However, these specimens are not to be found in the present collections (Gerald Mayr, pers. comm., 17th January 2013).

The skeleton and casts of the BM foot and Tradescant head were formerly (Creizenach 1913), and are currently, on display.

Hessisches Landesmuseum Darmstadt

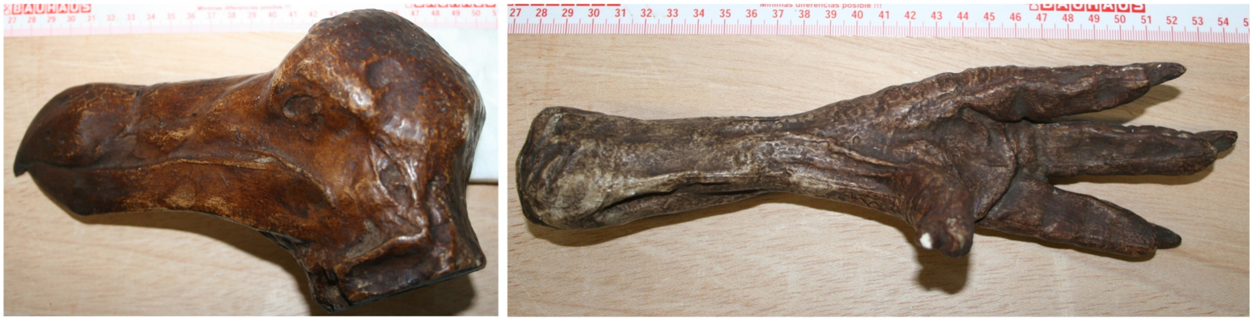
Hessisches Landesmuseum Darmstadt, Friedensplatz 1, 64283 Darmstadt, Germany. Abteilung Naturgeschichte – Zoologie.

Raphus cucullatus

Catalogue numbers from Jörn Köhler (pers. comm., 14th March 2012)

HLMD-A-2910a plaster cast of the Tradescant skull. Mentioned by Lambrecht (1933).

HLMD-A-2910b plaster cast of the BM foot. Lambrecht (1933) mentioned that "Plaster casts are possessed by the museums at Darmstadt (Oxford skull and Prague foot) and Brussels" (p.598) – the "Prague foot" being a mistake for the BM foot.



HLMD-A-2910a and 2910b (© Hessisches Landesmuseum Darmstadt).

Luther (1970) stated that, *contra* Greenway (1967),[120] Darmstadt does not possess any dodo bones, only a plaster cast of a head and a foot.

Pezophaps solitaria

Information partly from Jörn Köhler (pers. comm., 3rd December 2008)

HLMD-A-1933: individual bones (currently mounted on a board): fragmentary cranium, left quadrate, upper beak fragment (mostly premaxilla), mandibular symphysis left ramus (in proximal and distal portions), four cervical vertebrae, four vertebral ribs (three lacking distal extremities, one lacking proximal extremity), three sternal ribs, cranial portion of sternum, left portion of sternum, right humerus ('9.'), fragmentary pelvis ('6.'), left femur, proximal portion of right femur, right tibiotarsus, right tarsometatarsus, distal portion of right tarsometatarsus. The specimen came to the collection in 1877. Discovery site, collector and collection date unknown (G. Scheer *vide* Luther 1970, p.100).

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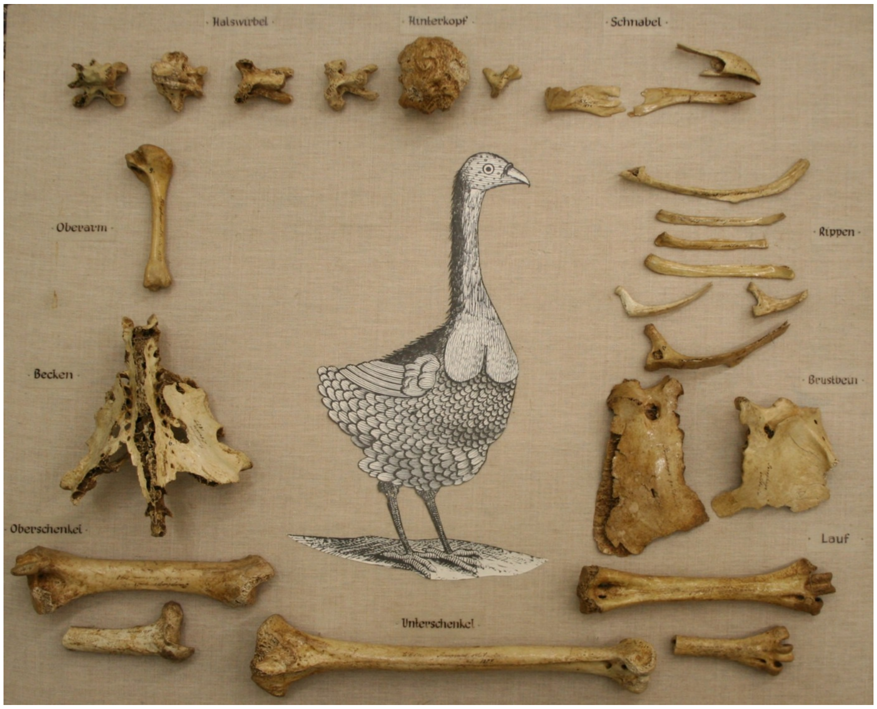
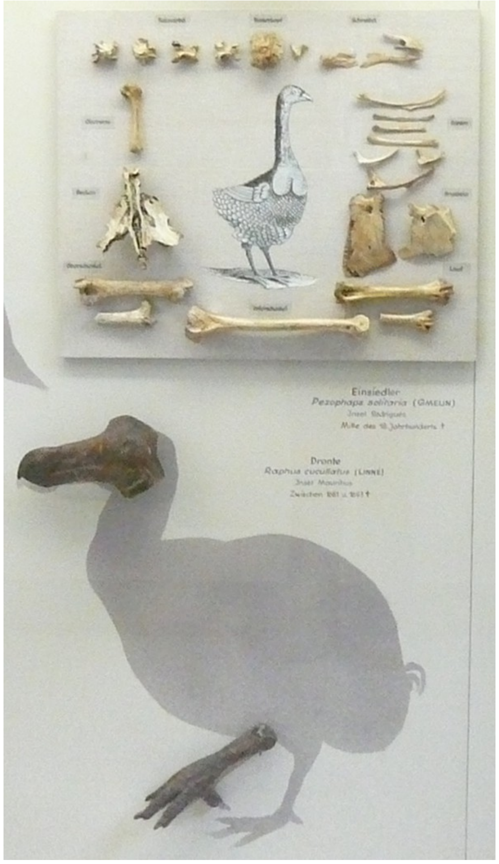
[120] Greenway (1967, p.122) stated that Darmstadt possesed dodo bone material from Mare aux Songes.



HLMD-A-1933 in a previous display (© Hessisches Landesmuseum Darmstadt).


Einsiedler
Pezophaps solitaria (GMELIN)
Insel Rodriguez
Mitte des 18. Jahrhunderts †
Dronte
Raphus cucullatus (LINNE)
Insel Mauritius
Zwischen 1681 u. 1691 †

HLMD-A-2910a, 2910b and 1933 in a previous display (© Hessisches Landesmuseum Darmstadt).

The specimens are to be displayed in a new exhibition, due to open in late 2012 or early 2013 (Birgit Jauker, pers. comm., 31st January 2011).

Hof-Apotheke, Erlangen

Hof-Apotheke, Susanne Dorner e.Kfr., Neustädter Kirchenplatz 2, 91054 Erlangen, Germany

Raphus cucullatus
Cast of the Tradescant head.

Erlangen cast of the Tradescant head (© Edgar Hellfritsch, 2002).

Zoological Museum, Heidelberg

The Zoological Museum, Neuenheimer Feld 230, Heidelberg, Germany. Specimens held in the Vogelsaal, 1st Floor.

Raphus cucullatus
Coloured plaster cast of the Tradescant head prior to dissection. Figured: Lüttschwager (1961, fig.10).
Uncoloured plaster cast of the BM foot. Figured: Lüttschwager (1961, figs.11-13)

The above were donated by Josef Reichholf of the Zoologische Staatssammlumg, Münich (Heinz F. Moeller, pers. comm., 26th January 2001). Unfortunately, no data concerning the provenance of the specimens survives (Josef H. Reichholf, pers. comm., 25th February 2008).

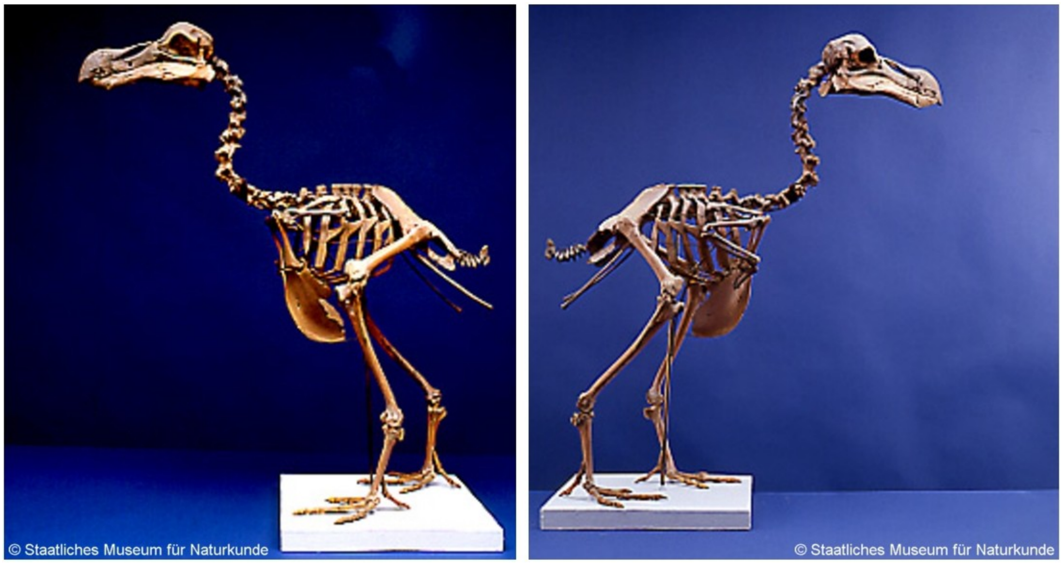
Staatliches Museum für Naturkunde, Stuttgart

Staatliches Museum für Naturkunde, Rosenstein 1, 70191 Stuttgart, Germany

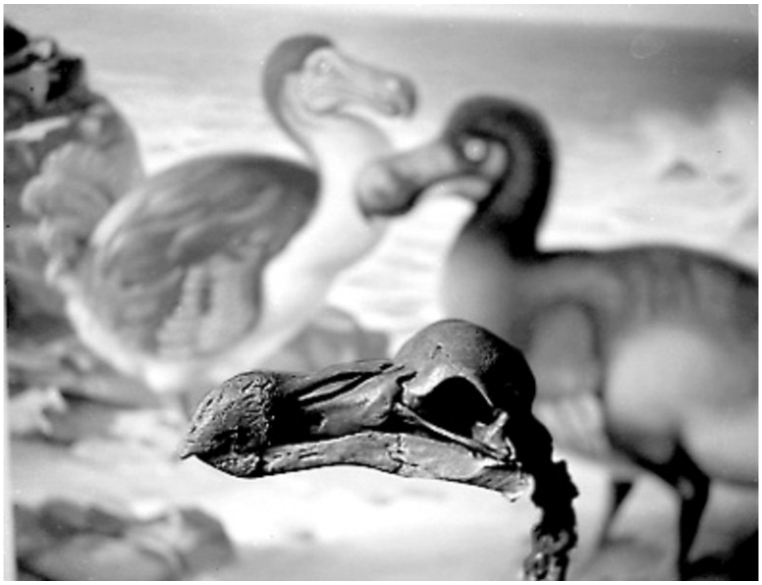
Raphus cucullatus
Cast of the head and cast of the foot, formerly placed in the bottom of cabinet XXXIII (Pigeons) in the Kgl. Naturalien-Sammlung (Lampert 1906). A copy Savery-BM hung above the cabinet (*ibid*.).

11910 almost complete mounted skeleton, with only the top of the cranium, the ribs, and the toes restored (F. Berckhemer to Kalman Lambrecht *vide* Lambrecht 1933; Friederike Woog, pers. comm., 13th March 2006). The skull is a cast and the neural spines of the dorsal vertebrae appear to be restored (pers. obs.). This skeleton shows original caudal vertebrae and a pygostyle (Stresemann 1958). The skeleton was mounted by preparator Fritz Kerz and was given to the Stuttgart

Museum by head physician August(in) Krämer (1865-1941). It was housed in the Naturaliensammlung Stuttgart, Paläontologische Abteilung (Lambrecht 1933) and is currently on display. Figured: Lambrecht (1933, pl.I); Lüttschwager (1961, fig.15); Kuhn (1971, fig.36 [after Lambrecht 1933]; Cornuault 1997, p.77 [photo Dr. Heizman]). Figured (illustration after Lambrecht 1933, pl.I): Luna de Carvalho (1989, fig.1d).


© Staatliches Museum für Naturkunde
© Staatliches Museum für Naturkunde

SMF 11910 (© Staatliches Museum für Naturkunde, Stuttgart).



SMF 11910 (© Staatliches Museum für Naturkunde, Stuttgart).

11911 eighteen single bones, one premaxilla

Pezophaps solitaria
11912 two tibiotarsi, two tarsometatarsi from at least two individuals.

The bone specimens were donated by August Krämer in 1907 (Ronald Böttcher *ex* Friederike Woog, pers. comm., 14th September 2010).

K. bayer. Akademie der Wissenschaften, Munich

Bavarian Academy of Sciences, Alfons-Goppel-Str. 11 11, 80539 München, Germany

Raphus cucullatus

In autumn 1847 the collection received a gift of a plaster cast of the Copenhagen dodo skull from the direction of the k. Naturhistorisches Museum in Copenhagen (Wagner 1847a). However, this specimen is in neither the Bayerische Staatssammlung für Paläontologie und Geologie (Markus Moser, pers. comm., 5th March 2012) nor the Zoologische Staatssammlung (Markus Unsöld, pers. comm., 16th May 2012) and may have been destroyed during the Second World War.

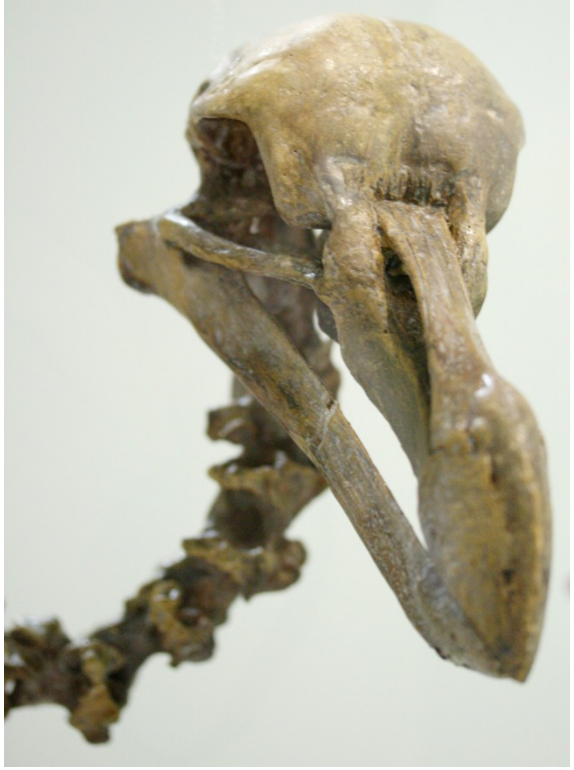
Naturhistorisches Museum Basel

Naturhistorisches Museum, Augustinergasse 2, CH-4001 Basel, Switzerland

Raphus cucullatus

NMB 11138 cast of a skeleton, displayed alongside a reconstruction of the dodo in an exhibition “Quagga & Dodo”. These are casts of originals in the Muséum d’Histoire Naturelle, Paris. They were provided to the museum in 1992 (http://www.nmb.bs.ch/13_ausgewaehlte_steckbriefe_aus_der_ausstellung_quagga_und_dodo_bedroht_und_ausgestorben.pdf).

Pierre Revilliod (1913) listed “Didus ineptus L. Kopf- und Extremitätenabgüsse” (p.215). However, neither casts of head nor of foot (“Kopf- und Extremitätenabgüsse”) have been located in the osteological collection (Raffael Winkler, pers. comm., 16th May 2008).



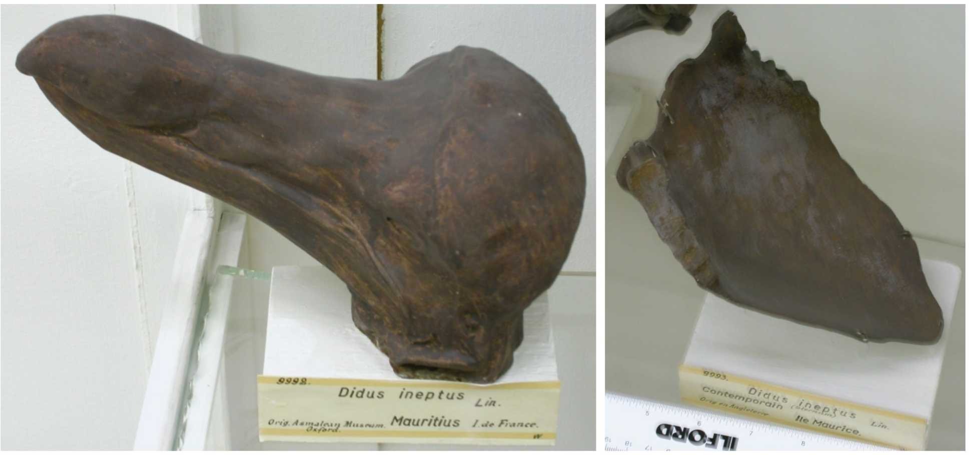
NMB 11138 (© Pbeurgler, 28th March 2010).

Lausanne Geological Museum

Geological State Museum, UNIL – Anthropole, CH-1015 Lausanne, Switzerland
Information from Robin Marchant (pers. comm., 8th May 2008).

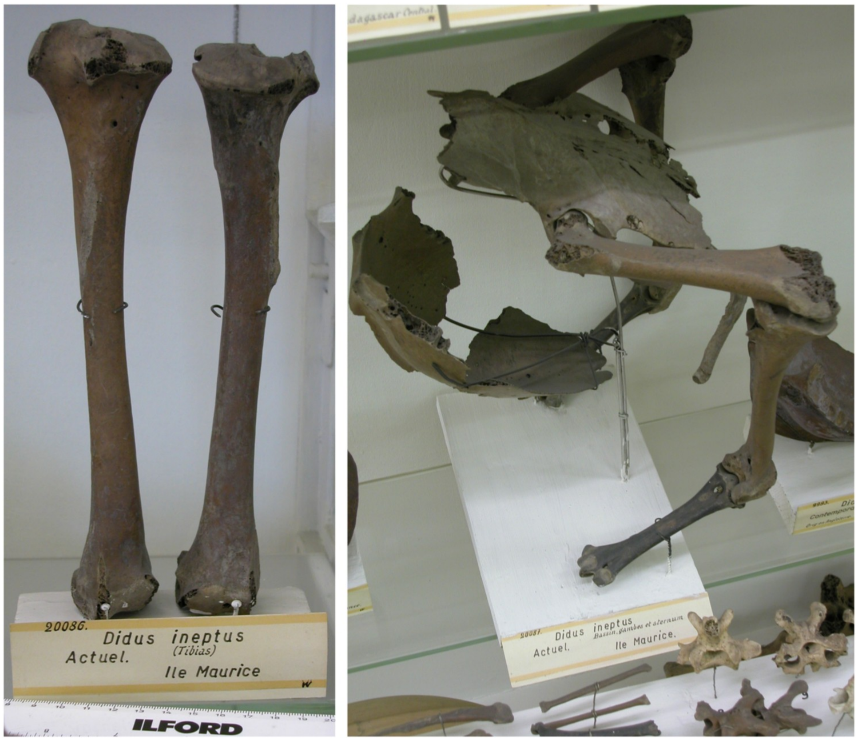
Raphus cucullatus

MGL 9992 brown-coloured cast of the Tradescant head made prior to dissection
MGL 9993 cast of sternum "Orig en Angleterre".



MGL 9992 and MGL 9993 (© Robin Marchant, Lausanne Geological Museum).

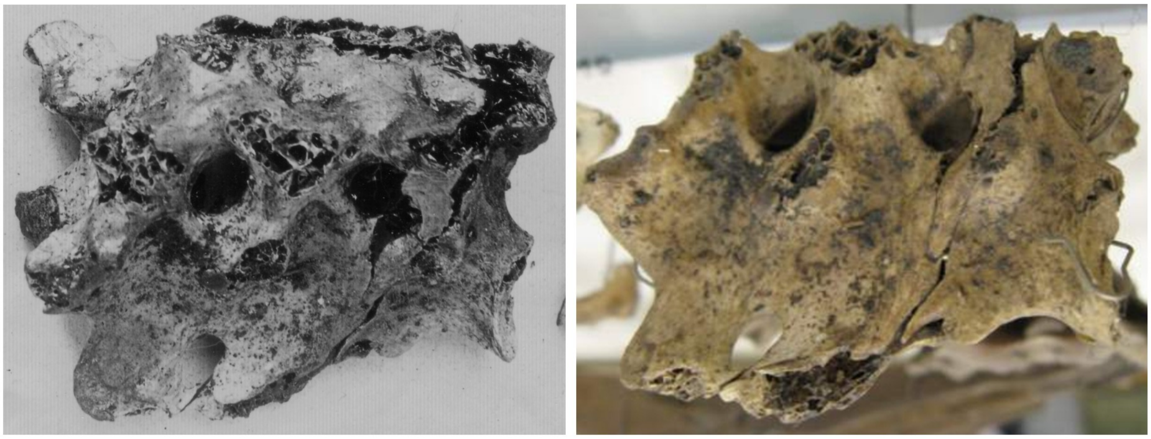
MGL 20086 left and right tibiotarsi
MGL 20087 sternum (damaged), pelvis (damaged cranially and caudally), left and right femora, left and right tibiotarsi, left and right tarsometatarsi (all articulated, although the femora are articulated backwards)



MGL 20086 (*left*) and MGL 20087 (*right*) (© Robin Marchant, Lausanne Geological Museum).

MGL 20106 bones sent in 1907 to Maurice Lugeon, director of the Lausanne Geological Museum, by Paul Carié. Locality given as "Curepipe (Ile Maurice)" on label:

1: Two fibulae
2: Two left first metatarsals, two right first metatarsals
3: Left and right humeri
4: Two radii
5: Two ulnae
6: Left coracoid, right scapulocoracoid (lacking most of scapula and sternal end of coracoid)
7: Left and right scapulae
8: Posterior cervical or anterior dorsal vertebra (cf. 11th or 12th)
9, 10: Two mid-cervical vertebrae (pale in colour. cf. 6th-10th)
11: Notarium (relatively pale in colour, damaged). This is the same as that in Thirioux's collection (see Transcriptions: fig.8, no.29)



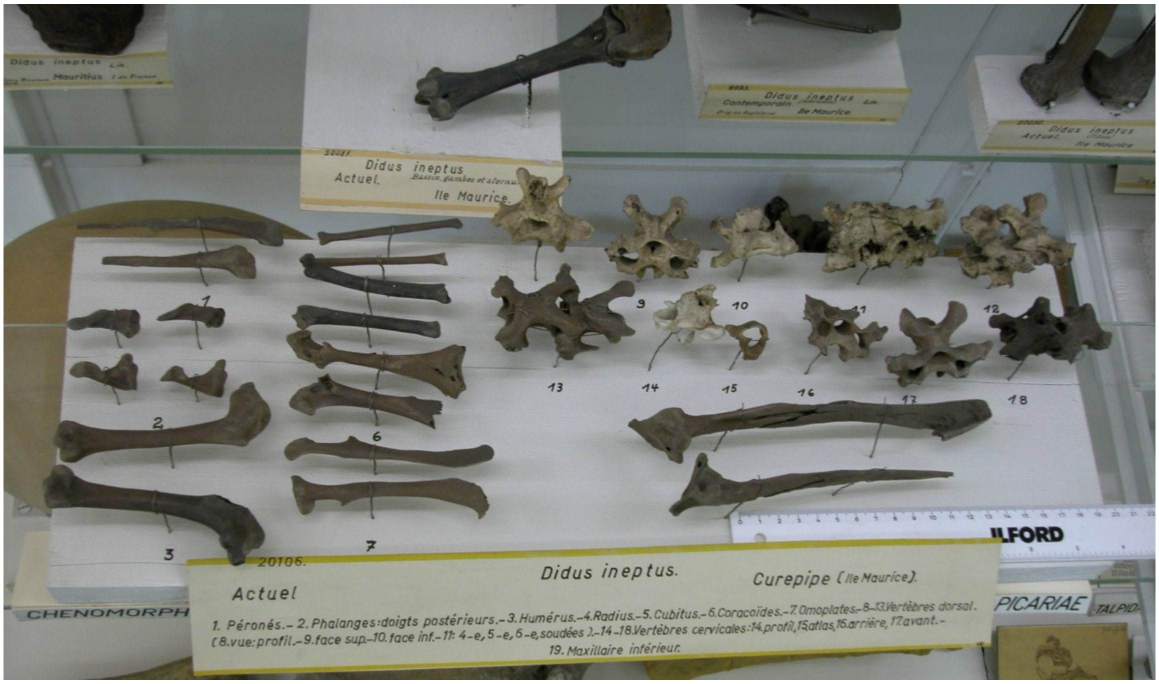
Left: Notarium from Thirioux's collection (© UMZC), *right*: the same specimen in the Lausanne collection (MGL 20106) (© Robin Marchant, Lausanne Geological Museum).

12: Two mid-cervical vertebrae, articulated (relatively pale in colour. cf. 6th-10th)
13: Two cervical vertebrae, articulated
14: Axis (whitish in colour)
15: Atlas
16, 17: Two mid-cervical vertebrae (cf. 6th-10th)
18: 3rd and 4th cervical vertebrae, articulated
Mandibular symphysis and left ramus
Right mandibular ramus

The MS. note by Paul Carié accompanying the dodo bones reads (in translation):

> List of the Bones of the Dodo dispatched to Mr Maurice Lugen
> Professor of Geology
> Université de Lausanne
> Switzerland
> 1 complete lower mandible (Mare-aux-Songes)
> 21 vertebrae, some in double, you do not have an 18th vertebra (rarest). The white bones come from the excavations of Mr Thirioux in the scree [*éboulis*] and the caves [*grottes*] of the surroundings of Port Louis; the brown bones come from the Mare-aux-Songes, at my place [*chez moi*]
> 1 pelvis (damaged) it is the best that I have.

two fragments of the sternum. (forward and back).
2 fragments of the pelvis, back part.
2 femora
4 tibiotarsi
2 tarsometatarsi.
2 humerus
2 radii
2 ulnae
2 coracoids
2 scapulae
4 phalanges (posterior digit)


Didus ineptus
Actuel.
Ile Maurice.
1
2
3
6
7
9
10
11
12
13
14
15
16
17
18
ILFORD
20106.
Didus ineptus.
Curepipe (Ile Maurice).
Actuel
1. Péronés.– 2. Phalanges: doigts postérieurs.– 3. Humérus.– 4. Radius.– 5. Cubitus.– 6. Coracoïdes.– 7. Omoplates.– 8–13. Vertèbres dorsal. (8. vue: profil.– 9. face sup.– 10. face inf.– 11: 4-e, 5-e, 6-e, soudées).– 14–18. Vertèbres cervicales: 14. profil, 15. atlas, 16. arrière, 17. avant.–
19. Maxillaire inférieur.
CHENOMORPH
PICARIAE
TALPID

MGL 20106 (© Robin Marchant, Lausanne Geological Museum).

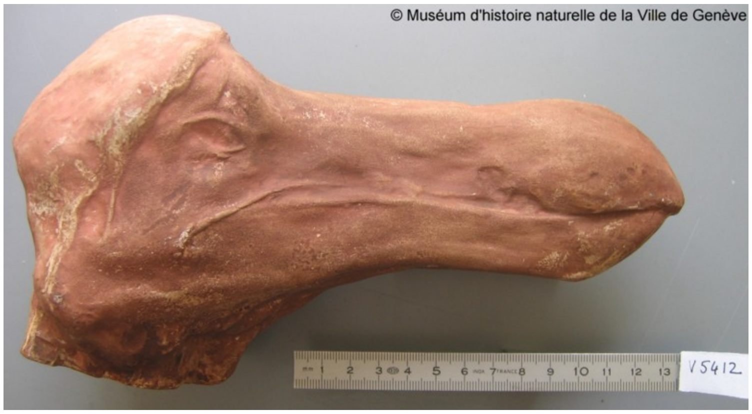
MGL 20106: axis (*left*), two cervical vertebrae (*middle*) and notarium (*right*) (© Robin Marchant, Lausanne Geological Museum).

Muséum d'histoire naturelle de la Ville de Genève

Muséum d'histoire naturelle de la Ville de Genève, CP 6434, 1211 Genève 6, Switzerland

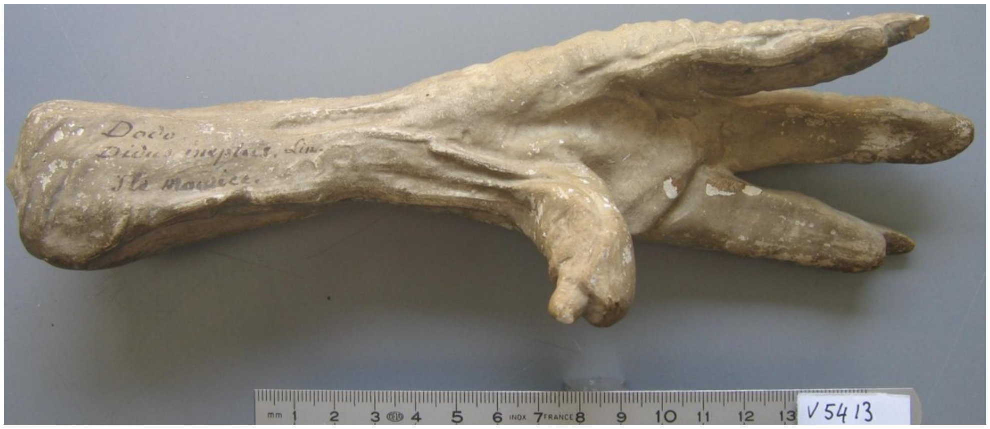
Raphus cucullatus

MHNG 628.029 cast of the Tradescant head. Not a first generation cast.



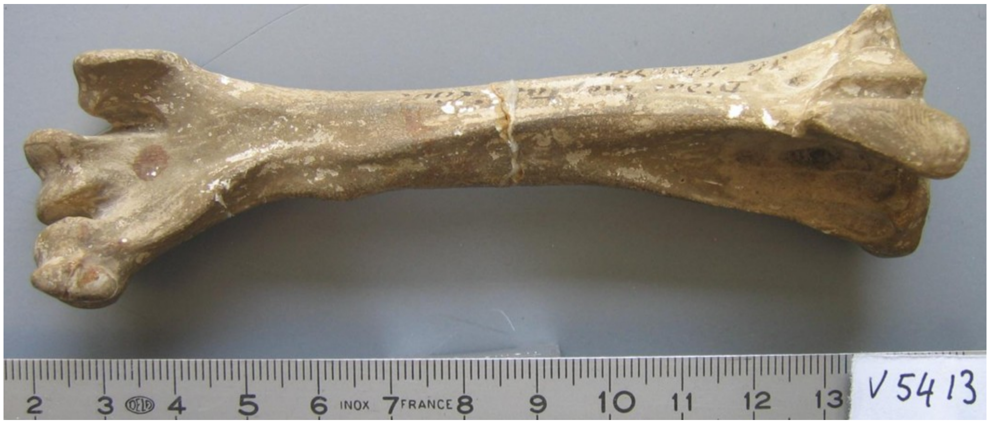
MHNG 628.029 (© Muséum d'histoire naturelle de la Ville de Genève).

MHNG 628.030 cast of the BM foot. Not a first generation cast. Bears "Dodo Didus ineptus. Lin. Ile Maurice." in ink.



MHNG 628.030 (© Muséum d'histoire naturelle de la Ville de Genève).

MHNG 628.031 cast of left tarsometatarsus.



MHNG 628.031 (© Muséum d'histoire naturelle de la Ville de Genève).

All the cast material was included in the collection book in September 1892, but lack data as to their provenance (Alice Cibois, pers. comm., 8th April 2008).

Pezophaps solitaria

MHNG 555.60 left tarsometatarsus (♂), lacking proximal extremity and slight damaged to trochleae. At the meeting of 1st August 1865, one Mr. Lunel submitted a tarsometatarsus of the solitaire to the *Societé Ornithologique Suisse*, which was acquired by the Musée de Genève (Lunel 1865, p.150). Accessioned August 1865 and apparently brought from Verreaux[121] (Manual Ruedi, pers. comm., 1st February 2008). The entry in the accessions log for August 1865 reads:

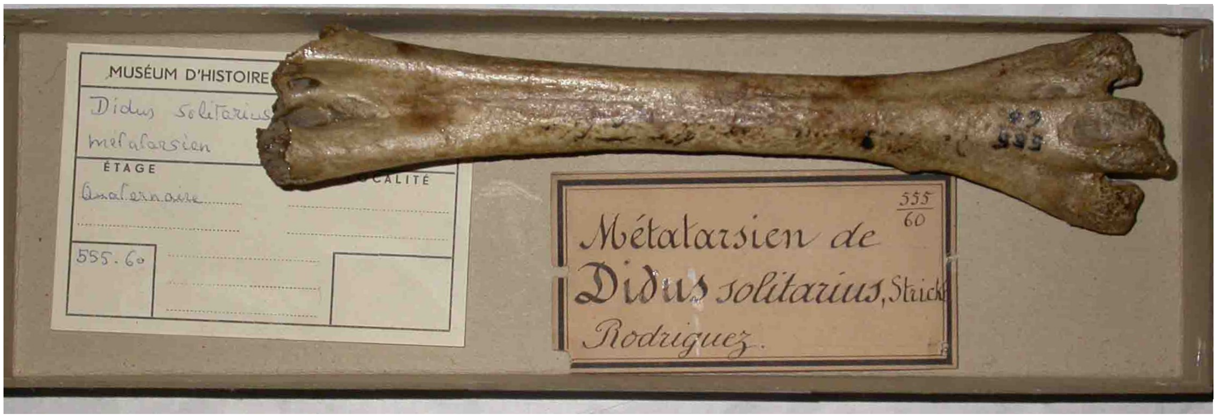
> 60. | " [Août] | métatarsien de Solitaire. | 1. | Esp. éteinte | Ile Rodriguez. | acheté à Verreaux | Pezophaps solitaria Strickland

[60. " [August] [tarso]metatarsus of solitaire. 1. Extinct sp. Rodrigues Island. Purchased from Verreaux Pezophaps solitaria Strickland]

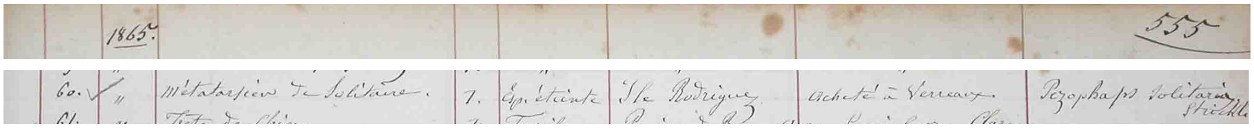
The accompanying label reads:

> Métatarsien de $\frac{555}{60}$
> Didus solitarius, Strickl
> Rodriguez.

Hadfield (1875) saw “the tarsus and another bone of the solitaire” in the museum of Geneva when he visited in September 1875 (p.4677).



MHNG 555.60 (© Muséum d’histoire naturelle de la Ville de Genève).



1865. 555

60. ✓ " métatarsien de Solitaire. 1. Esp. éteinte Ile Rodriguez. acheté à Verreaux Pezophaps solitaria Strickl.

Accessions log entry for MHNG 555.60 (© Muséum d’histoire naturelle de la Ville de Genève).

Naturhistorisches Museum Wien (NHMW)

Das Naturhistorisches Museum Wien, Burgring 7, A - 1010 Wien, Austria. (Formerly the K. K. Naturhistorisches Hofmuseum, Wien).

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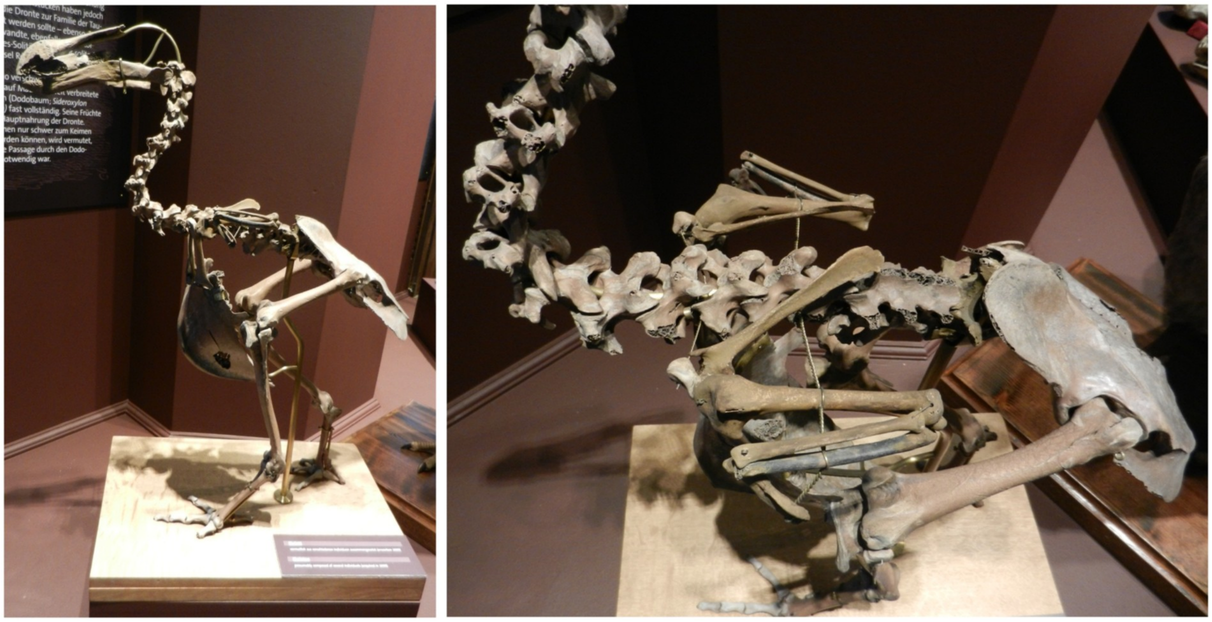
[121] Jean Baptiste Édouard Verreaux (1810-1868). French naturalist, collector and dealer. Jules Pierre Verreaux (1807-1873). French ornithologist, collector of and dealer in natural history specimens. Maison Verreaux, the family business, was located at Place des Vosges, Paris.

Raphus cucullatus

1.471 (acquisition number 1904/II/1) almost complete mounted skeleton. The skeleton was donated by Franz Steindachner,[122] director of the museum, 1898-1919, in 1904 (Steindachner 1905; Von Liburnau 1905; Hans-Martin Berg, pers. comm., 9th August 2012). It was exhibited, along with casts of the Prague beak, BM foot and Oxford specimen and several illustrations, at the meeting of the *Zoologisch-botanischen Gesellschaft* of Vienna by the custodian of the museum, Ludwig Lorenz Ritter von Liburnau, on 10th February 1905 (Von Liburnau 1905). In 1905 it was placed in Hall XXXI of the zoological department, in a showcase of its own in which were added casts of dodo specimens (see below) and illustrations (Steindachner 1906). In 1911 they were housed in a case in front of the middle window in Room XXXI (Baedeker 1911). The illustrations were presumably the two watercolour copies made by the preparator of the zoological department, Max Freiherr von Schlereth[123] in 1905 of contemporary illustrations of the dodo (*ibid*.). At some stage the 1905 showcase was restored (Anon. 2003b) and the specimens were exhibited in Room XXXI (Ernst Bauernfeind, pers. comm., 8th January 2008), the Gallery of Ornithology (Staudinger 1990). In 2011 the skeleton was moved to another showcase in Hall 31 and displayed alongside a reconstruction of the dodo (Hans-Martin Berg, *op. cit.*). The skeleton is fairly complete, although it lacks the cranium, ribs, some wing bones, some pedal phalanges and several other bones. The pedal phalanges are casts (Hans-Martin Berg, *op. cit.*). The skeleton is 70cm high, approximately 45cm high at the pelvis, and the skull is 21cm long (Killermann 1915). Figured: Killermann (1915, fig.7: photograph courtesy of the director of the zoological department Ludwig Lorenz von Liburnau;[124] x approx. 1/10); Coffey (1991, p.3).



Vienna dodo skeleton (NHMW 1.471) (© Bird Collection/Natural History Museum Vienna, phot. H.-M. Berg).

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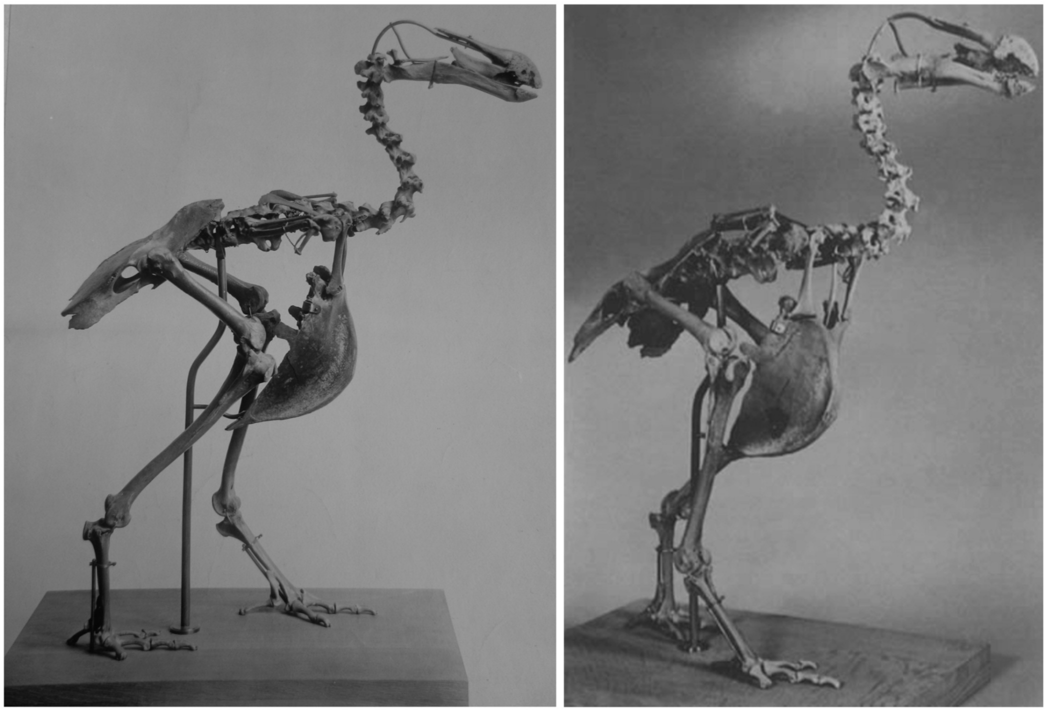
[122] Franz Steindachner (1834-1919). Austrian zoologist.

[123] Max Schlereth, Freiherr von Schlehenried. Preparator, illustrator and painter, K. K. Naturhistorisches Hofmuseum, XVII Kirchengasse 39, Vienna.

[124] (Hans-Martin Berg, pers. comm., 9th November 2012). Killermann (1915) mistakenly cites him as "Hofrat Direktor Dr. Lenz" (p.370).



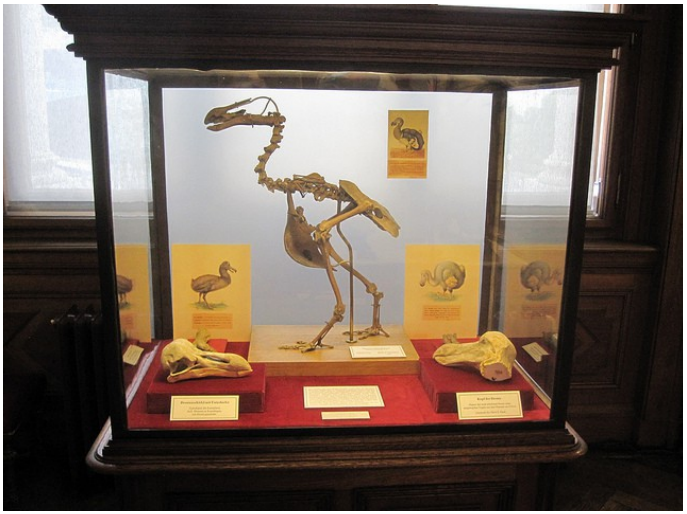
Vienna dodo skeleton (NHMW 1.471) (*left*: NHMW archives, © Archive Bird Collection/Natural History Museum Vienna).

10.003 cast of the Prague beak (mentioned by Von Liburnau 1905). The label accompanying the specimen on display, mistranscribes this as the gift of Mr. P. Daub (Ernst Bauernfeind, pers. comm., 19th August 2010).

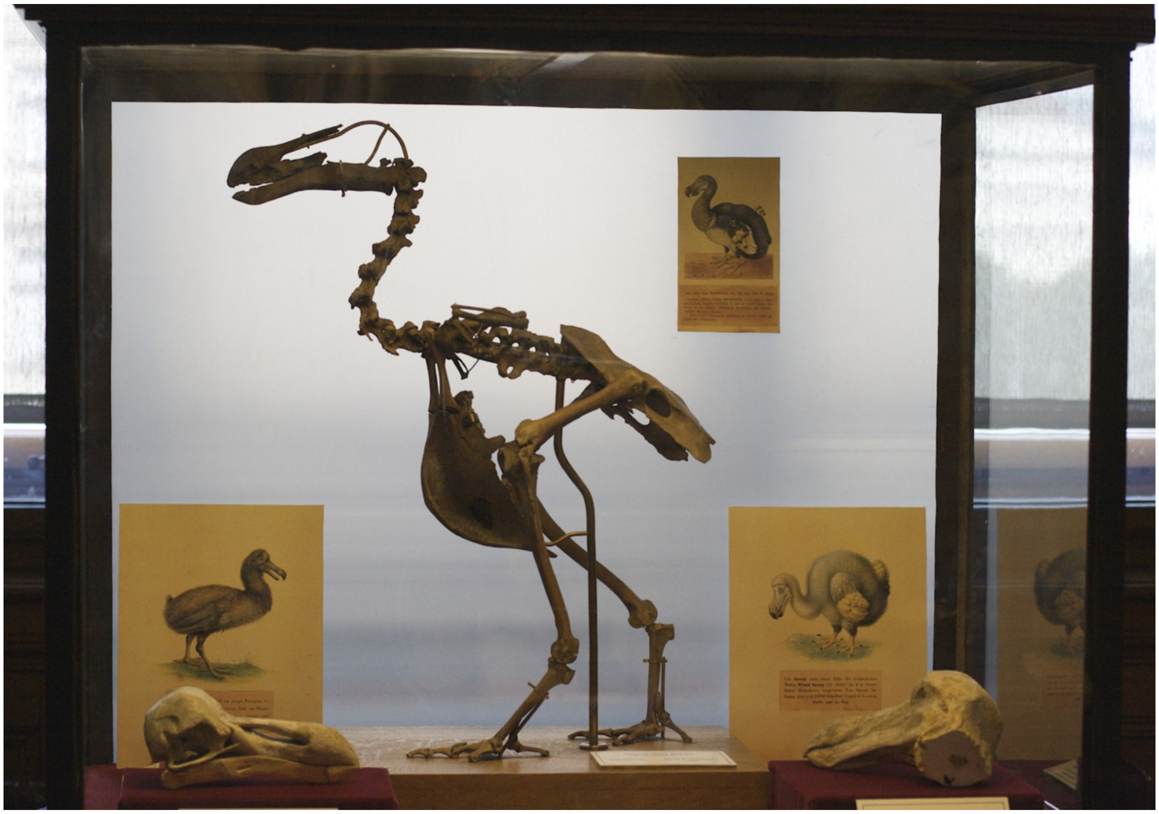
97.061 (acquisition no. 1847/XI/1) plaster cast of the Copenhagen skull and mandible. Donated as a gift by the Zoologisk Museum, Copenhagen in 1847 (Von Pelzeln 1890).

97.062 (acquisition no. 1845/XI/1) plaster cast of the Tradescant head prior to dissection (mentioned by Von Liburnau 1905). Gift from Philip Bury Duncan via Charles Giles Bridle Daubeny in 1845 (Von Pelzeln 1890). However, the label accompanying the specimen on display, mistranscribes this as the gift of Mr. P. Daub (Ernst Bauernfeind, pers. comm., 19th August 2010).

97.063 cast of the BM foot (mentioned by Von Liburnau 1905)



Vienna dodo display (© Chris Freeland, 27th May 2010).



Vienna dodo display (© Martin from Vienna, Austria [http://www.flickr.com/photos/20961302@N00 M], 29th July 2010).

Pezophaps solitaria
Information from Ernst Bauernfeind (pers. comm., 19th August 2010).

NMW 1.467 (acquisition number 1868/IX/1) bones (♀): three vertebrae, one synsacrum, one left femur, one left tibiotarsus, one fibula, one left tarsometatarsus. Sex undetermined: one pedal phalanx. Donated by Edward Newton in 1868.

NMW 1.468 (acquisition number 1868/IX/1) bones (♂): one left femur, one left tibiotarsus, one left tarsometatarsus. Donated by Edward Newton in 1868.

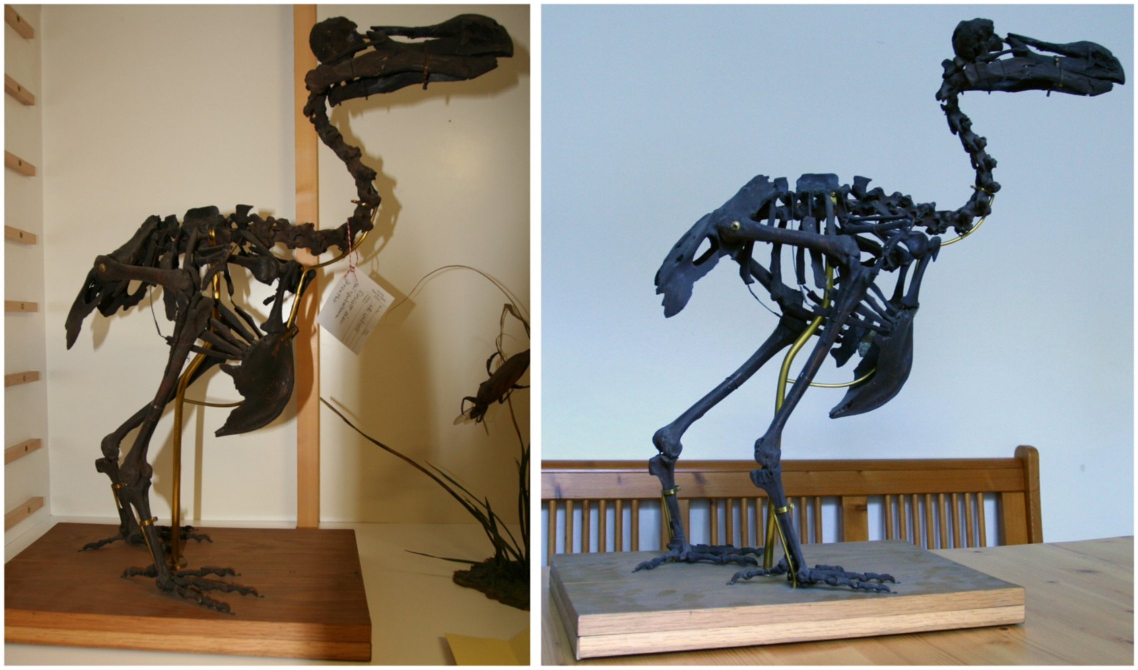
“Foot bones of both sexes”, three vertebrae and one pelvis, donated as a gift by Edward Newton in 1868 were mentioned by Von Pelzeln (1890, p.532).

Haus der Natur, Salzburg

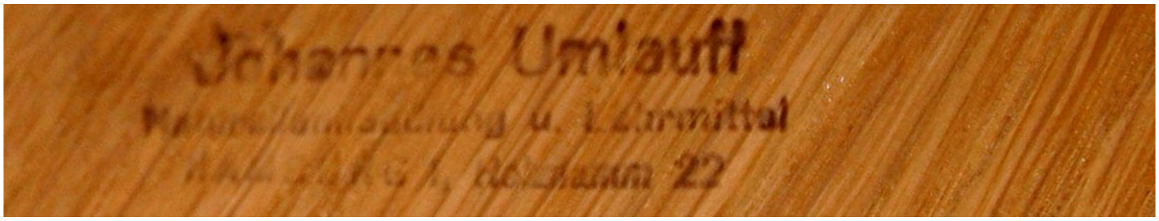
Verein Haus der Natur – Museum für Natur und Technik, Museumsplatz 5, 5020 Salzburg, Austria

Raphus cucullatus
Almost complete skeleton. Some bones might be casts or reproductions. The skeleton has no label, but the underside of the wooden base bears the stamp of the natural history dealer Johannes Umlauff of Hamburg. “Johannes Umlauff / Naturalienhandlung und Lehrmittel / Hamburg 1 Holzdamm 22”. The skeleton was on display in the 1950s but later moved to the archives (Robert Lindner, pers. comm., 2nd September 2010). The skeleton looks very similar in terms of its mounting and included cast elements to those originating from Deyrolle. A note from the early 1960s (?) relates that the specimen was purchased from a French dealer (Robert Lindner, pers. comm., 10th December 2010). Thus, it appears that the skeleton was assembled by Umlauff and was then acquired by a French dealer, probably Deyrolle, and was subsequently

purchased by the Haus der Natur in 1950s.



Salzberg dodo skeleton (© Robert Lindner, Haus der Natur, Salzburg, 2010).



Label on underside of the base of the skeleton (© Robert Lindner, Haus der Natur, Salzburg, 2010).

Tratz (1953, p.34) noted that the display “Dodo oder Dronte, die flugunfähige Riesentaube” [“Dodo or Dronte, the flightless giant pigeon”], including the dodo skeleton, a dodo reconstruction, a cast of the dodo skull (presumably the Copenhagen specimen), several pictures and relevant literature was set up again in a showcase in Hall 12. The current whereabouts of the skull cast and the reconstruction are unknown (Robert Lindner, pers. comm., 2nd September 2010).

Národní Museum, Prague (NMP)

Národní Muzeum (National Museum), Václavské nám. 68, CZ-115 79 Praha 1, Praag, Czech Republic.
Bird room, 2nd floor, Natural History Department.

The Prague beak and right leg elements of *Pezophaps* (articulated) are currently on display.

Raphus cucullatus

Antonín Frič had plaster[125] casts made of the Prague beak and exchanged these with other museums for casts of the BM foot and other specimens (Frič 1861; see below).

P6V-004389 (Mlíkovský *et al*. 2011) (ič. 4389 kat. 10185) facial skeleton. See Parish (2013, pp.178-190).

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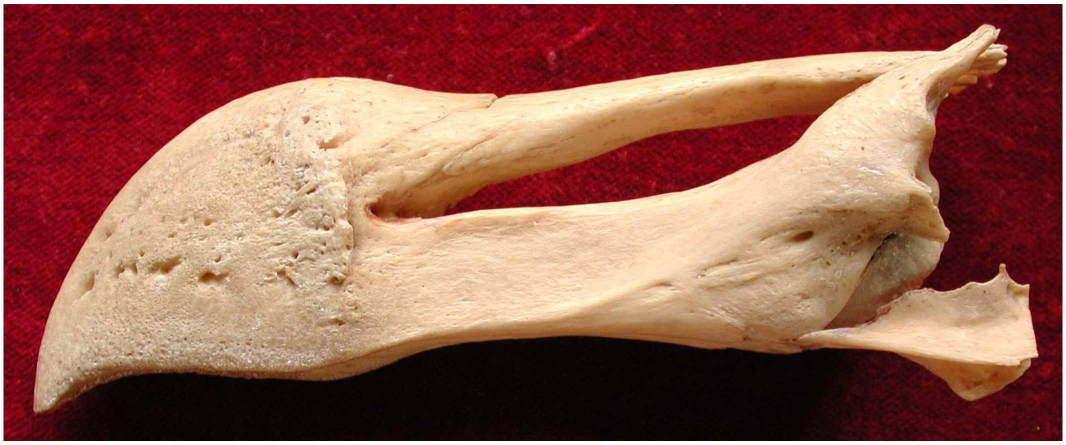
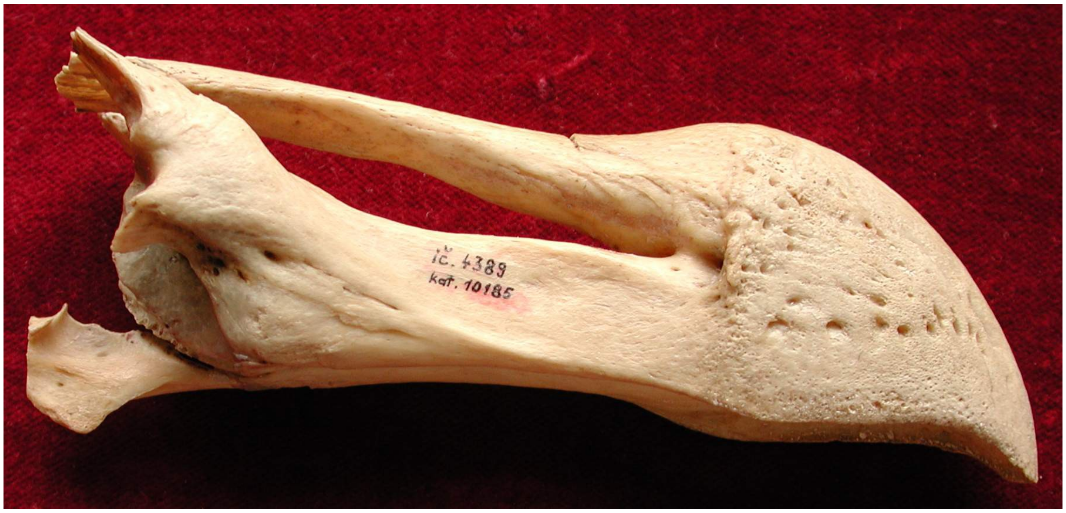
[125] Or wax (Anon. 1927 *Národní Listy. Večerník-Národ*).

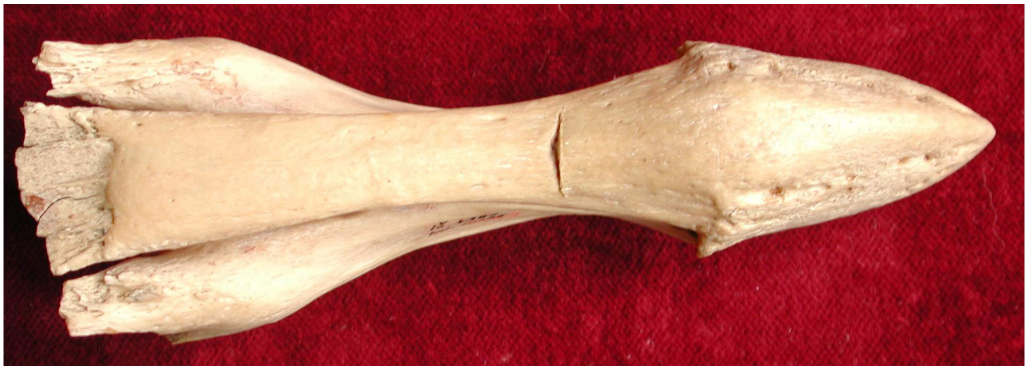
Figured: Reuss (1855, taf.i) [reproduced: Staudinger 1990, p.349; Parish 2013, fig.5.3]; Kotal (1875, fig.5); Van Wissen (1995, p.65); Ziswiler (1996, p.68); Fuller (2002, p.123); Kallio (2005, p.27); Mlíkovský (2010a, fig.4), Mlíkovský (2012, fig. 10: photo: Jiří Moravec); Parish (2013, fig.5.2)



Prague dodo specimen (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Litochleb).

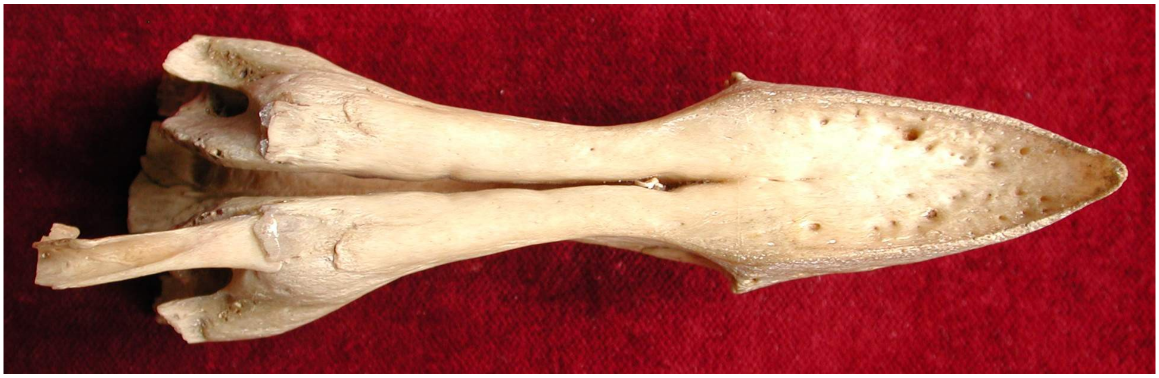


Prague dodo specimen (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Litochleb).

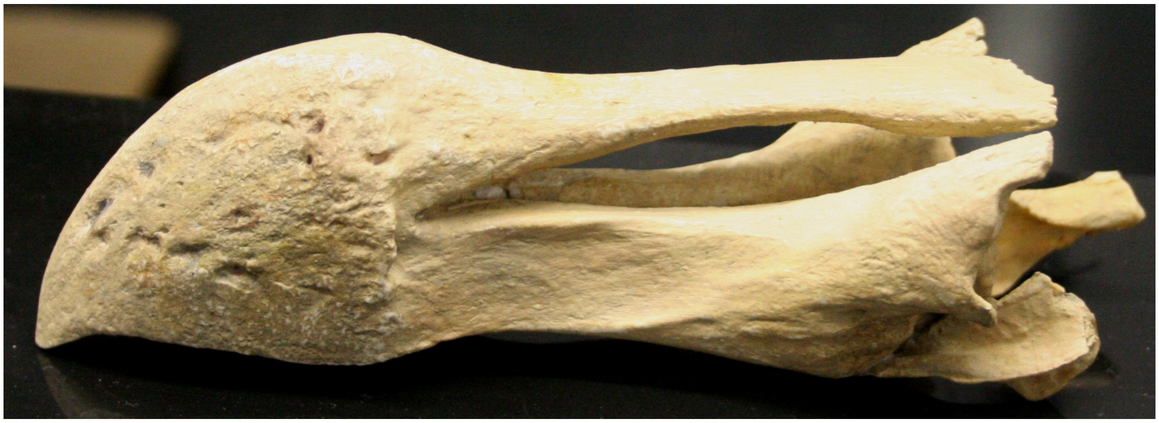


Prague dodo specimen (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří

Litochleb).



Prague dodo specimen (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Litochleb).



Prague dodo specimen (© Zdeněk Chalupa).

Dodo bones (Van Wissen 1995)
Cast of the Prague beak, ordered by Antonín Frič (Mlíkovský 2012)
Cast of the Tradescant head (probably that mentioned by Reuss 1855)
Cast of the Copenhagen skull (probably that mentioned by Reuss 1855)

In his catalogue of the Czech Museum, Frič (1854, p.30) listed: Number 1: "Upper beak, found in 1847 by the curator CORDA amongst museum stores", and mentioned a wax cast sold for 3 ducats;[126] Number 2: cast of the Copenhagen skull; Number 3: cast of the Tradescant 'skull' [*lebky*].

In 1861 the Prague beak, a cast of the Tradescant head, a cast of the Copenhagen skull and a cast of the BM foot. were exhibited in the bird collection, beneath the display of the Chinese pheasant (Frič 1861, Kotal 1875). In 1882 the dodo specimens housed in the zoological collection on the first floor (Oleszkiewicz 1882) and in 1927 the Prague beak, the cast of the Tradescant head, cast of the BM foot, cast of the Copenhagen skull and a cast of a sternum were exhibited on the second floor of the Národní Museum, in room no.13, case no.16. A specimen of *Didunculus* was kept in case no.15 (Anon. 1927 *Národní Listy. Večerník-Národ*). The casts are still in the collection, but have no current numbers, only ones for a system formerly in use (Jiří Mlíkovský, pers. comm., 9th April 2012).

Pezophaps solitaria

P6V-004388 (ič. 4388 kat. 10184) right femur (♀). Donated by A. Newton. Figured: Ziswiler (1996, p.68); Janoo (1997, pl.1, fig.C); Fuller (2002, p.123); Kallio (2005, p.27); Parish (2013, fig.5.4).

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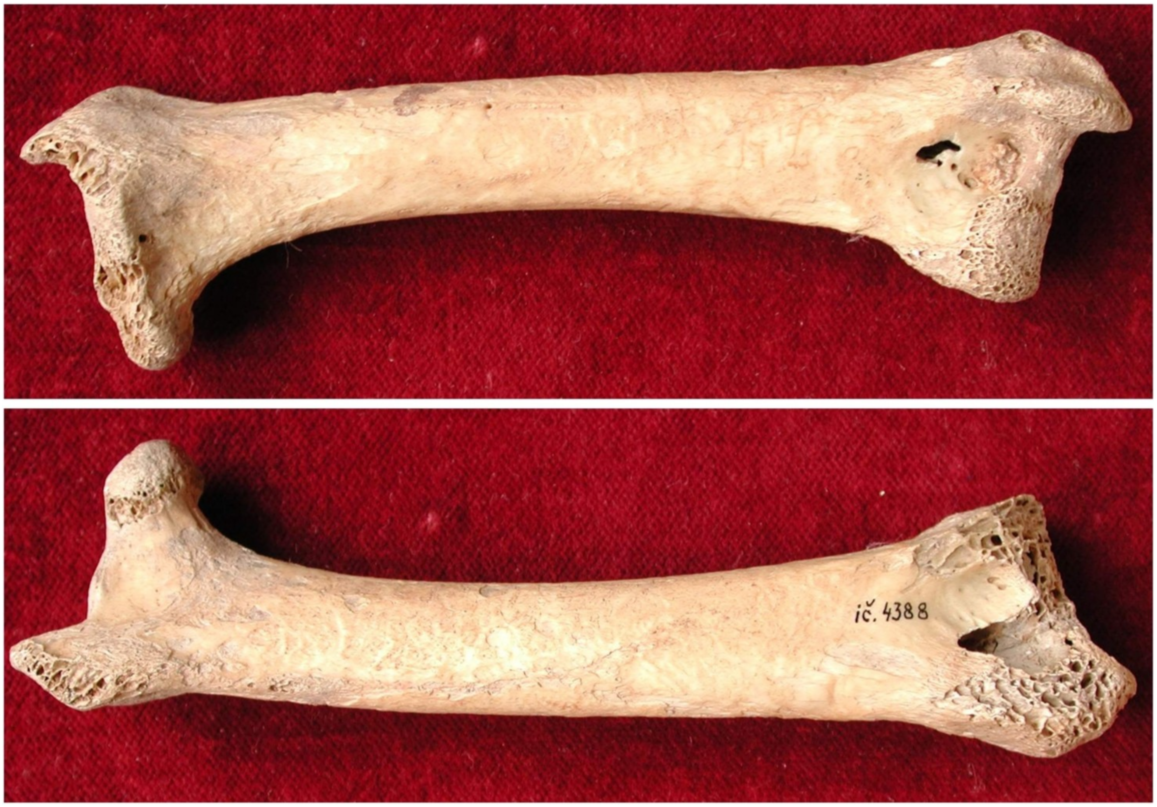
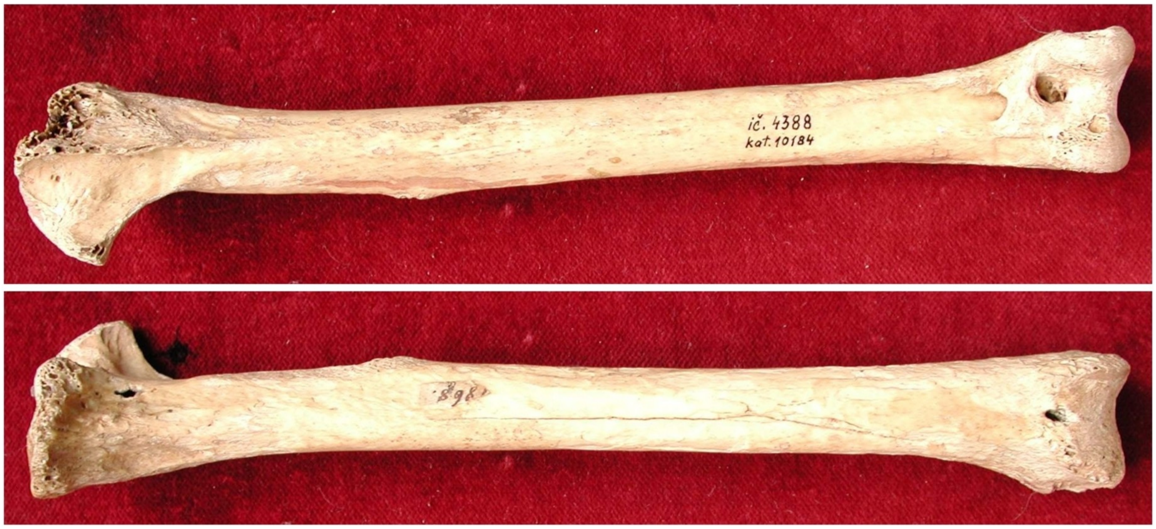
[126] "Voskové oblitky prodávají se po 3 dukátech" (p.30).

P6V-109145 right tibiotarsus (♀). Donated by A. Newton. Figured: Ziswiler (1996, p.68); Janoo (1997, pl.1, fig.C); Fuller (2002, p.123); Kallio (2005, p.27); Parish (2013, fig.5.4).

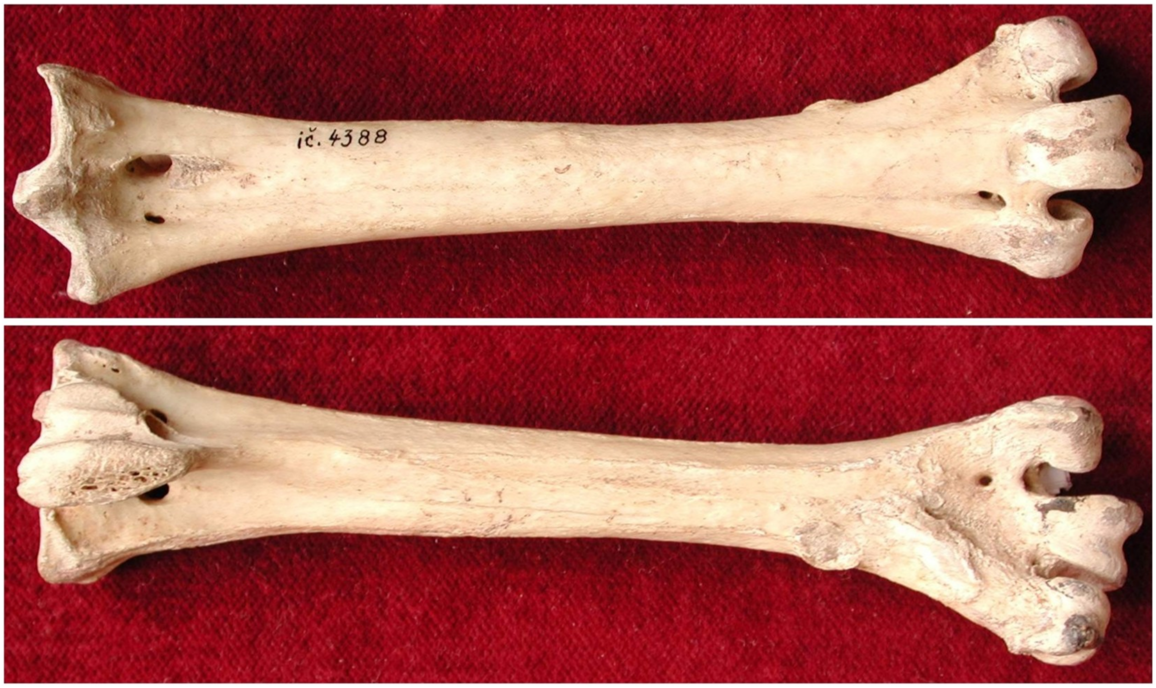
P6V-109146 right tarsometatarsus (♀). Donated by A. Newton. Figured: Ziswiler (1996, p.68); Janoo (1997, pl.1, fig.C); Fuller (2002, p.123); Kallio (2005, p.27); Parish (2013, fig.5.4).



Prague solitaire femur (P6V-004388) (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Litochleb).



Prague solitaire tibiotarsus (P6V-109145) (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Jiříchleb).



Prague solitaire tarsometatarsus (P6V-109146) (© photograph by Jiří Moravec. Used with permission of Jiří Moravec and Jiří Litochleb).

In the “Report on the Museum of the Czech Kingdom from 1st September to the end of November 1868”, under the contributions to the animal collections, is recorded that Alfred Newton donated “three bones of the legs of the bird Didus ineptus” (Anon. 1868j, p.406). The three bones were listed erroneously by Obenberger (1935) as femur (*stehenni*), fibula (*lýtkovou*) and feet (*běhák*) and stated to belong to the dodo.

Muzeul National de Istorie Naturala “Grigore Antipa”, Bucharest, Romania

Muzeul National de Istorie Naturala “Grigore Antipa”, Sos.Kiseleff nr.1, Bucharest, Romania

Raphus cucullatus
Skeleton

Royal Zoological Museum, Copenhagen, Denmark (ZMUK)

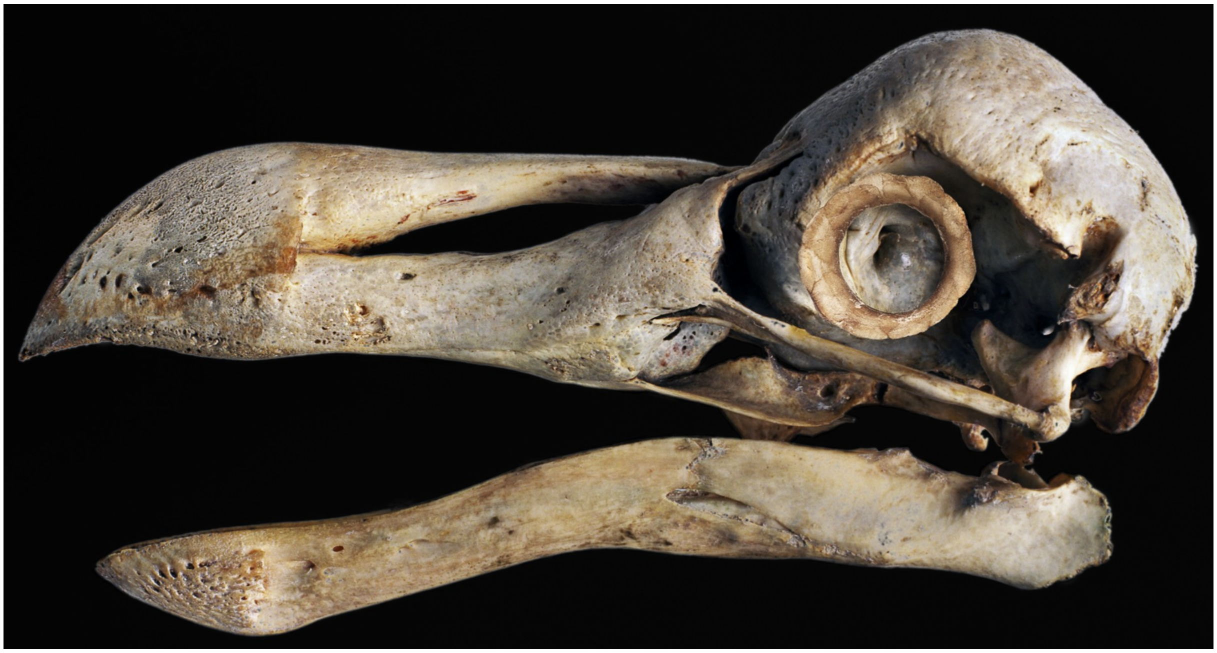
Zoologisk Museum, University of Copenhagen, Universitetsparken 15, DK 2100 København Ø, Denmark. Bird Section.
Data from Jan Bolding Kristensen (pers. comm., 26th August 2011); records by Jan Bolding Kristensen.

Raphus cucullatus

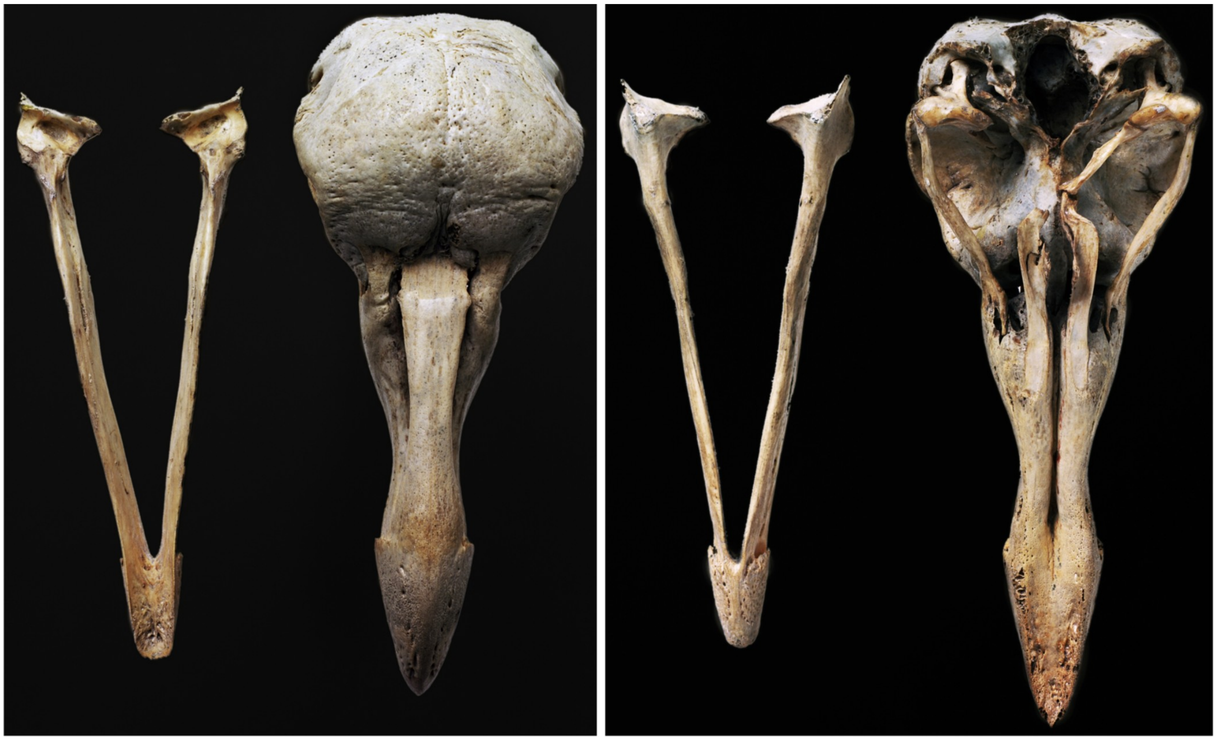
AVES-105483 synsacrum. Collected 28th May 1930. Accessioned 8th November 2010, no.5.

AVES-105484 complete pelvis. Syntype. Mare aux Songes. Collected 1865, by Th. Mortensen. Accessioned 8th November 2010, no.6.

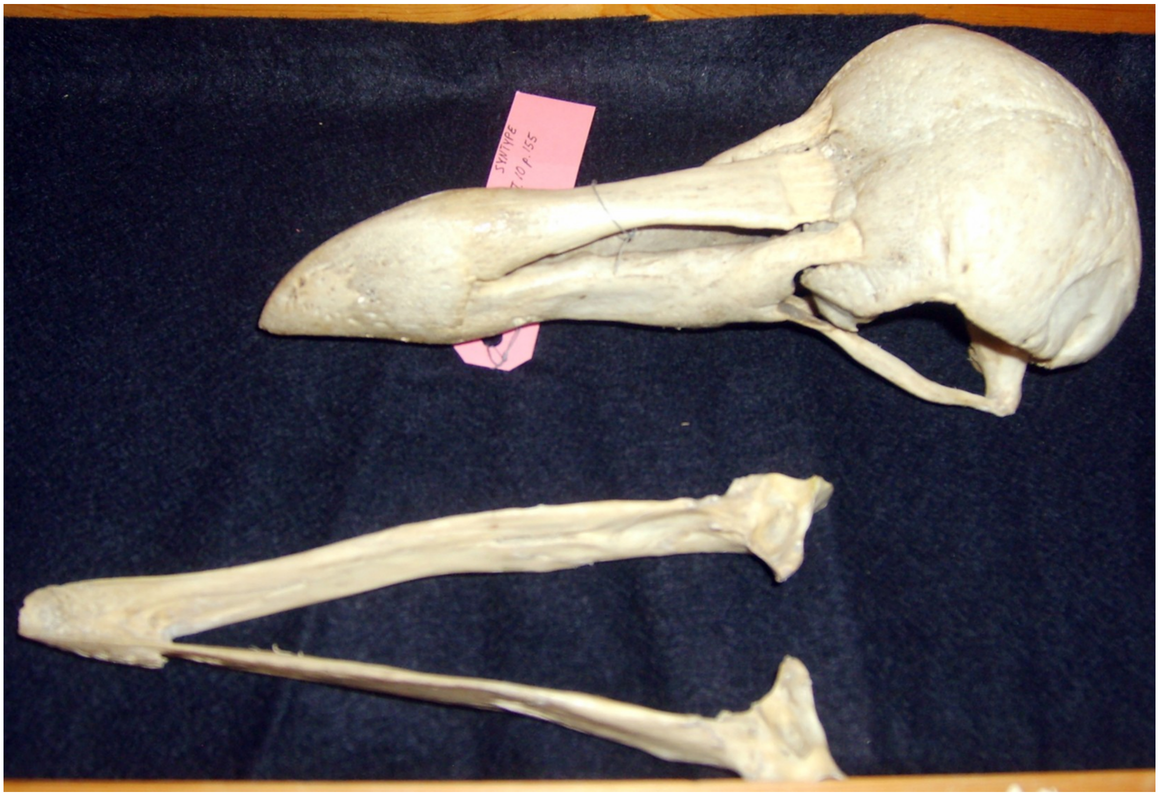
AVES-105485 skull with sclerotic ring and mandible (the Copenhagen head: see Parish (2013, pp.190-195)), three casts of the same skull. Syntype. Accessioned 8th November 2010, no.7. Melville informed Strickland (letter of 25th February 1848; D-235) that Reinhardt had visited various times and that he would acquire a sketch of the interior of the Copenhagen skull (Rookmaaker 2010). Figured: Heilmann (1916, fig.191, no.ii [engraving] [reproduced: Parish 2013, fig.5.8]); Janoo (1997, pl.1, fig.A); Kallio (2005, pp.10, 26, 62, 63); Parish (2013, fig.5.6). Figured (illustration): Luna de Carvalho (1989, fig.1c)?



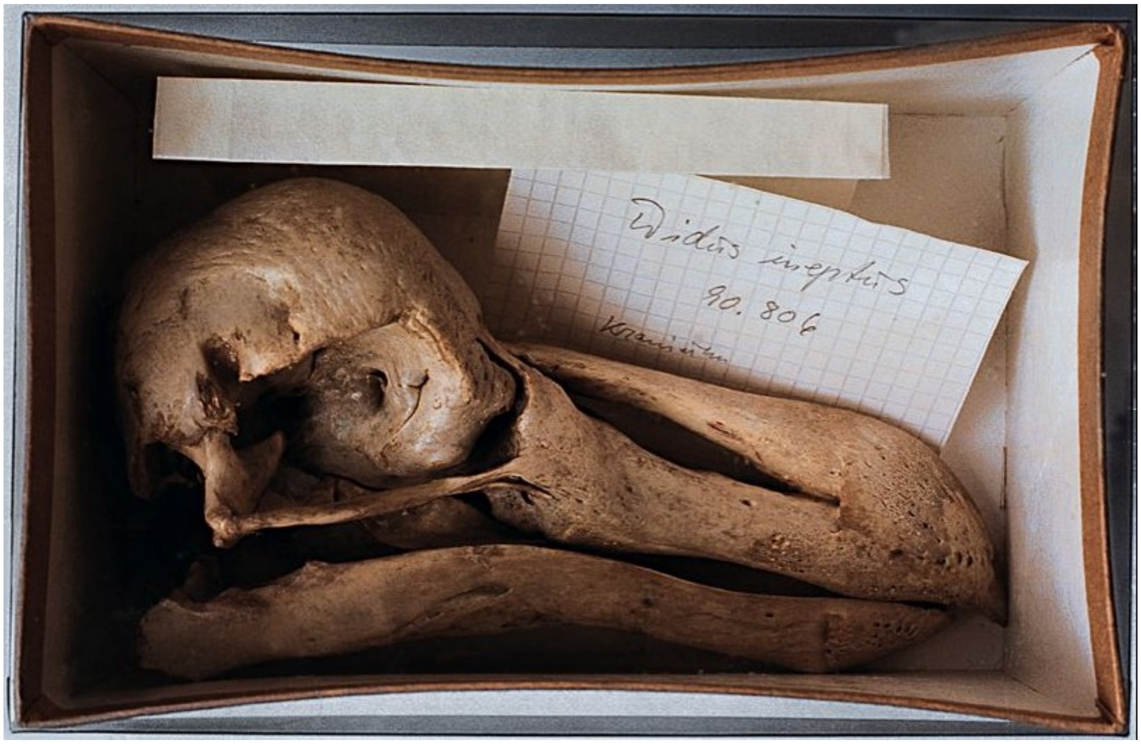
The Copenhagen dodo skull (© Harri Kallio).



The Copenhagen dodo skull (© Harri Kallio).



The Copenhagen dodo skull (© FunkMonk, 2012).



The Copenhagen dodo skull (© Harri Kallio).

AVES-105486 cervical vertebrae. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.8.

AVES-105487 cast of the Prague beak (R.30.1.1860). Syntype. Accessioned 8th November 2010, no.8.

AVES-105488 cast of the Prague beak. Syntype. Accessioned 8th November 2010, no.10. A catalogue listing (*ex* Jan Bolding Kristensen, pers. comm., 26th August 2011) states: "Probably "Paaw" specimen (i.e. syntype)".

AVES-105489 cast of the BM foot (R.29.2.1867), mounted 30th August 1867. Accessioned 8th November 2010, no.11.

AVES-105490 left tarsometatarsus (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.12.

AVES-105491 scapula, coracoid, fibula (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.13.

AVES-105492 sternum (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.14.

AVES-105493 two femora, two tibiotarsi, two tarsometatarsi. Collected 28th May 1930 by Th. Mortensen. Accessioned 8th November 2010, no.15.

AVES-105494 tarsometatarsus (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.16.

AVES-105495 mandibulae (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.17.

AVES-105496 femur (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.18.

AVES-105497 femur. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.19.

AVES-105498 two tibiotarsi (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.20.

AVES-105499 two tibiotarsi (R.4.4.1866), mounted 19th April 1866. Mare aux Songes. Collected 1865. Accessioned 8th November 2010, no.21.

AVES-105500 twelve cervical vertebrae. Collected 28th May 1930 by Th. Mortensen. Accessioned 8th November 2010, no.22.

AVES-137740 cast of the Tradescant head prior to dissection. Accessioned 26th August 2011, no.1.

Pezophaps solitaria

AVES-105479 partial humerus, femur, tibiotarsus, tarsometatarsus (all ♀). Mounted 29th August 1870. Collected by E. Newton. Accessioned 8th November 2010, no.1.

AVES-105480 humerus (♂, ♀), ulna (♂, ♀), clavicle (♀), carpometacarpus (♀). Mounted 29th August 1870. Collected by E. Newton. Accessioned 8th November 2010, no.2.

AVES-105481 three vertebrae, synsacrum, ilium, three phalanges. Mounted 29th August 1870. Collected by E. Newton. Accessioned 8th November 2010, no.3.

AVES-105482 femur, tibiotarsus, two tarsometatarsi (all ♂). Mounted 29th August 1870. Collected by E. Newton. Accessioned 8th November 2010, no.4.

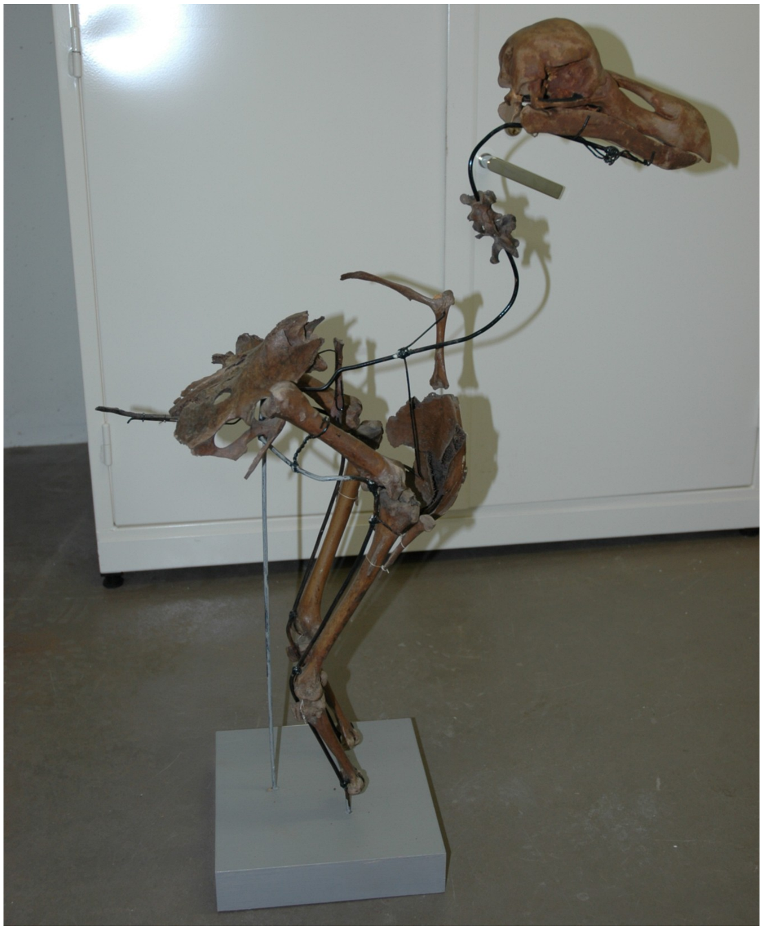
Swedish Museum of Natural History, Stockholm

Swedish Museum of Natural History, Frescativägen 40, 114 18 Stockholm, Sweden. (Naturhistoriska Riksmuseet). Department of Vertebrate Zoology.

The dodo and solitaire specimens were exhibited in a glass cabinet in the large bird room (Ottow 1949).

Raphus cucullatus

NRM 523096 an incomplete mounted skeleton, a transfer of Alfred and Edward Newton. The skeleton possesses two mid-cervical vertebrae, a sternal rib, left scapulocoracoid, fragmentary sternum, pelvis (lacking cranial and caudal extremities), left and right femora, left and right tibiotarsi, left and right fibulae and left and right tarsometatarsi (Ottow 1949, 1952; Ulf Johansson, pers. comm., 6th July 2012). The skull and mandible are casts, probably from the Copenhagen specimen, due to similarity of shape and the lack of the left pterygoid (Ulf Johansson, *op. cit.*). The skeleton was acquired shortly before the First World War (Mertens 1925).



NRM 523096 (© Swedish Museum of Natural History, 2012).

Five vertebrae, fragmentary sternum, scapula, left femur, left tibiotarsus, left tarsometatarsus (Ulf Johansson, pers. comm., 14th February 2008; *contra* Ottow (1949), who stated that the museum possessed no further dodo bones other than the skeleton). The leg elements are unarticulated. It is recorded in the old catalogue that Edward Newton collected a "pes sinister" (left foot) in 1866 and that this was given to the Museum by Alfred Newton in 1867 (Ulf Johansson, pers. comm., 14th February 2008). These specimens are kept in the same jar (Ulf Johansson, pers. comm., 20th June 2012).

Plaster cast of the Copenhagen skull (Ottow 1949). From the Royal Zoological Museum in Copenhagen (Anon. 1848i). This may be the skull and mandible cast incorporated into the skeleton (see above).

Cast of the BM foot. Neither the cast of the Copenhagen skull nor the BM foot have catalogue numbers (Ulf Johansson, pers. comm., 21st September 2012).

Anon. (1848i) listed a cast of the Tradescant head (from P. B. Duncan, via William Kirtland) and a cast of the Copenhagen skull as being in the Zoological Department (Zoologiska Afdelningen). Ottow (1949) also mentioned a plaster cast of the Tradescant head and one of the BM foot at the Riksmuseet, Stockholm. However, today there are neither casts of the Tradescant nor BM specimens in the collection (Ulf Johansson, pers. comm., 20th June 2012).

Alfred Newton (Wolley & Newton 1905-1907) remarked: "Being with my brother Edward at Stockholm in July, 1867, we shewed Prof. [Carl Jacob] Sundevall some Dodos' bones we had with us, for which he was good enough to say he would let us have one of these eggs [of *Larus eburneus*] in exchange. Herr Meves,[127] however, being away at the time, the eggs were inaccessible, and it was not until September that I received [...] one" (p.341).

In the *Tidskrift för antropologi och kulturhistoria* (Anon. 1875d) it is recorded that Mr. Kinberg showed a collection of dodo bones "lately given to the Museum of natural history [= Riksmuseum] by Mr. Stanley, civil engineer" (p.94). Kinberg is probably Johan Gustaf Hjalmar Kinberg (1820-1908), Professor at Stockholm and Stanley is Walmsely Stanley.

At the conference of the Zoological and Zoopalaeontological divisions held at the Twelfth Meeting of the Skandinaviska Naturforkarnes on 12th July 1880 in Stockholm, Kinberg gave a presentation on the dodo and another on the great auk (Anon. 1883b).

In a communication to Catherine Strickland (29th August 1856; D-213) John Wolley forwarded a letter he had received from Johannes Reinhardt (D-215) whilst staying with Anders Retzius in Stockholm. In the latter it was noted that Reinhardt showed a wax cast of the Copenhagen skull at a scientific meeting in 1842 (Anon. 1842), which was later given to the museum of Carolinska (Karolinska) Institutet (Rookmaaker 2010; see Parish 2013, p.378n18).

Pezophaps solitaria

More or less complete skeleton (Ottow 1949)

Left femur, left tibiotarsus, left tarsometatarsus (unarticulated). Material originating from Cambridge (Ottow 1950). These were apparently collected by Edward Newton on Rodrigues in 1866 and given to the museum by Alfred Newton in 1868, although whether this was a donation, exchange or purchase is uncertain (Ulf Johansson, pers. comm., 14th February 2008).

Solitaire material loaned to Hialmar Rendahl by the BM(NH) in 1949 was returned in 1953 (Ulf Johansson, pers. comm., 14th February 2008).

Museum of Evolution, Uppsala University

Evolutionsmuseet, Norbyvägen 16, SE-752 36 Uppsala, Sweden

(Formerly the Palaeontological Museum, Uppsala; Museum of the Palaeontological Institute, Uppsala). Palaeontological collections.

Pezophaps solitaria

Almost complete skeleton received by Carl Wiman (1867-1944), Professor of Palaeontology at the University of Uppsala, in 1935 in an exchange with the BMNH. The skeleton is probably that of a ♂, judging by the size of its bones, although the cranium is probably from a ♀ (supraorbital width, measured between the middle of the dorsal orbital margins = 59mm; mandible length = 134mm: Ottow 1949, 1950). The skull has two quadrates, partially damaged maxilla, almost complete mandible, and no palatines or pterygoids (Ottow 1950). The vertebrae show slight exostotic alteration on the dorsal spinous processes of the 4th and 5th cervicals, and on the transverse processes of the 7th cervical are enlarged and irregularly formed. The pelvis lacks the cranial and a part of the caudal area on the right side, and on the left only the caudal part of the pelvis and pubis are missing. The area caudal to the acetabulum and ventral to the ilioischiadic foramen shows significant thickening and swelling, due to a pathological bone condition (Ottow 1950). The skeleton possesses ribs, a furcula, sternum, fibulae and pedal phalanges (*ibid.*). The pedal phalanges show no pathologic alteration. The old card catalogue entry reads: "PMU A51. /Pezophaps solitaria/ Strickland et Melv. Locality Rodriguez. The Mascarene Islands" (Jan Ove R. Ebbestad, pers. comm., 6th February 2008).

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[127] Friedrich Wilhelm Meves (1814-1891). Curator of the Naturhistoriska riksmuseet's zoological collections 1842-1877.

University Museum, Bergen

University Museum of Bergen, Universitetet i Bergen, Postboks 7800, 5020 Bergen, Norway. Sub-fossil osteology collection. Information from Anne Karin Hufthammer (pers. comm., 19th April 2012; 31st August 2012).

The dodo and solitaire bones were purchased, along with other biological specimens, from Albert Gundersen,[128] New Zealand, possibly 3rd October 1879. The bones were on display until 1960/70? Recently, during moving of the collections, some further dodo and solitaire specimens were rediscovered, having been unnoticed for decades. These specimens had been acquired in an exchange with the University of Cambridge, probably in the 1890s. They have been reregistered as JS 1625 and JS 1626 (Anne Karin Hufthammer, pers. comm., 31st August 2012).

Raphus cucullatus

JS 1573 eleven bones: synsacrum, left scapulocoracoid, sternum, left humerus, two femora (left and right), two tibiotarsi (left and right, but not from the same individual), left fibula, two tarsometatarsi (left and right, but not from the same individual). Registered in 1879 as specimen no.2203. The registration journal merely states that the specimens were from New Zealand, although ‘Mauritius’ was also written on the display cupboard. The bones were given a new number (JS 1573) in 2001 and incorporated into the sub-fossil osteology collection.

JS 1625 (old catalogue number 3161) mandible (right part broken), synsacrum, right humerus. The locality is given as Mauritius.

Cast of the Copenhagen skull and mandible

Pezophaps solitaria

JS 1574 eleven bones: right coracoid, right humerus, right radius (with pathology), right carpometacarpus, two femora (left and right, but not the same individual), two tibiotarsi (left and right, but not from the same individual), left fibula, two right tarsometatarsi. Registered in 1879 as specimen no.2203. The registration journal merely states that the specimens were from New Zealand, although ‘Rodriquez’ was also written on the display cupboard. The bones were given a new number (JS 1574) in 2001 and incorporated into the sub-fossil osteology collection.

JS 1626 (old catalogue number 3162) (mostly fragmentary) three cranium fragments from three individuals, fragmentary maxilla, one quadrate, one left and one right proximal ends of mandibular ramus, seven vertebrae, four synsacra (of four individuals, ♂ and ♀?), two sternum fragments, fragmentary left scapula, left humerus, one carpometacarpus. The locality is given as Rodrigues.

Museo Nacional de Ciencias Naturales de Madrid

Museo Nacional de Ciencias Naturales, José Gutiérrez Abascal, 2, 28006 Madrid, Spain

Raphus cucullatus

Uncoloured cast of the Tradescant head, uncoloured cast of the BM foot.[129] Probably not first generation casts. Labels currently lost. Figured: Valledor de Lozoya (2011, p.35).

Museo Civico di Storia Naturale, Milan

Museo Civico di Storia Naturale, Corso Venezia 55, 20121 Milano, Italy

Raphus cucullatus

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[128] Albert Gundersen, native of Bergen, Watchmaker and jeweller of 251 High Street, Christchurch, New Zealand. Later became Norwegian Consul in New Zealand.

[129] These are the only dodo specimens at the museum and indeed in Spain (Arturo Valledor de Lozoya, pers. comm., 13th October 2011).

MSNM Av 34007 cast of a complete dodo skeleton in the Mauritius Institute composed of bones of different individuals,[130] purchased 10th October 1994 from the preparator Aart Walen ("Creatures and Features") of Amsterdam. Scientific assistance for casting and mounting was provided by Andrew Kitchener (National Museums of Scotland) (Giorgio Chiozzi, pers. comm., 17th April 2008).

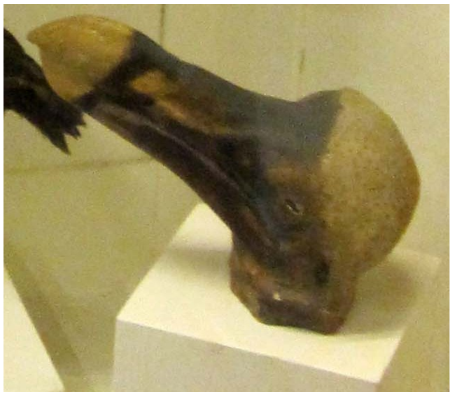
MSNM Av 36704 left tarsometatarsus. Given by the Museum of the Mauritius Institute to Cesare Conci of the Milan Museum in January 1973. (Violani *et al*. 1984; Giorgio Chiozzi, pers. comm., 17th April 2008). It has the number 10115/156 written on it (Giorgio Chiozzi, pers. comm., 17th April 2012).

Museo di Storia Naturale di Firenze

Museo di Storia Naturale dell'Università di Firenze, Via Romana 17, 50125 Firenze, Italy. Sezione di Zoologia "La Specola".

Raphus cucullatus

Coloured cast of the Tradescant head prior to dissection, on display with other extinct birds. There is no information on the cast in the museum's catalogue, although it is probable that it was acquired during the directorship of Enrico Hillyer Giglioli between 1869 and 1909 (Fausto Barbagli, pers. comm., 4th April 2012).



Cast of the Tradescant head, Museo di Storia Naturale dell'Università di Firenze (© John Mosbaugh, 15th September 2010).

Zanzibar

Natural History Museum, Creek Road (annexe to The Peace Memorial Museum), Zanzibar, Tanzania

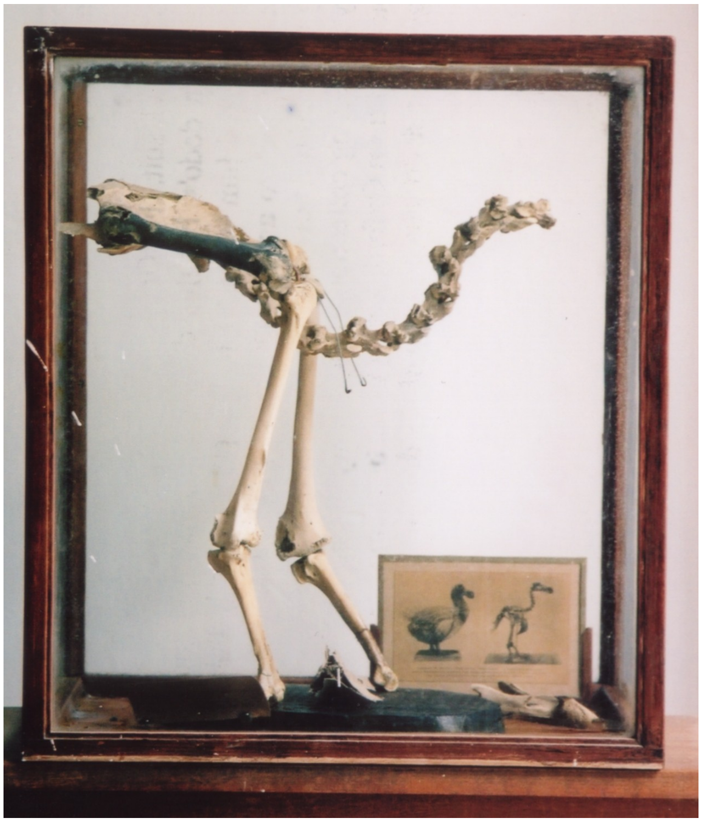
Raphus cucullatus

Very incomplete and incorrectly reconstructed dodo skeleton (Van Wissen 1995). The skeleton was purchased by William Harold Ingrams,[131] a British administrator, in *c*.1940 (*ibid*.). It contains cervical vertebrae, the proximal portion of pelvis, femora, tibiotarsi and tarsometatarsi. The bones are light buff colour (except for the right femur which is almost black). The tibiotarsi have been mounted upside-down. Also in the case are a mandibular symphysis with distal rami, a fragment of sternum (formerly attached to the skeleton), and a picture of the Durban dodo reconstruction and skeleton. The uniform light colour of the bones might suggest a source other than Mare aux Songes, but this is unprovable at present.

---

[130] Probably Sauzier's skeleton (pers. obs. from comparison of photographs).

[131] William Harold Ingrams (1897-1973). Colonial administrator. He was Assistant Colonial Secretary in Mauritius 1927-1933 and Acting Colonial Secretary in Zanzibar 1932-1933.



The Zanzibar dodo skeleton (© Jan den Hengst, 2004).

National Museum of Tanzania, Dar es Salaam

Raphus cucullatus

A complete dodo skeleton was reported to be present in the National Museum of Tanzania, Dar es Salaam, sometime around 1996 (www.bbc.co.uk/dna/h2g2/F1853607?thread=476736 [accessed 15 December 2011]). However, this specimen is not to be found in the Museum and House of Culture (National Museum of Tanzania) (Adelaide Sallema, pers. comm., 5th March 2012).

Maputo, Mozambique

Raphus cucullatus

"In verschiedenen Museen können zusammengesetzte Knochenreste bestaunt werden, in Mauritius, Mosambik (Maputo), auf Zanzibar, in Berlin". [In different museums assembled bone remains can be admired, in Mauritius, Mozambique (Maputo), at Zanzibar, in Berlin] (Jadu 2000-2003). "Einen Dronte knochen gibt es in Maputo" [There is a dodo bone in Maputo] (Dodohaus Berlin 2004). The webmaster at Jadu.de stated that "it seems that bones have been at Maputo but I cannot confirm this, maybe before the civil war" (Rainer, Dodohaus, pers. comm., 16th September 2010). There are no dodo specimens in the Museu de História Natural, Maputo (Almeida Guissamulo, pers. comm., 9th September 2010).

Jadu 2000-2003 Ornithologie. From: http://www.jadu.de/florafaun/vogelwelt/ [accessed 17 April 2004]
Dodohaus Berlin 2004 Museen und Bibliotheken der Welt. From: http://www.dodohaus.de/index.html [accessed 8 February 2005]

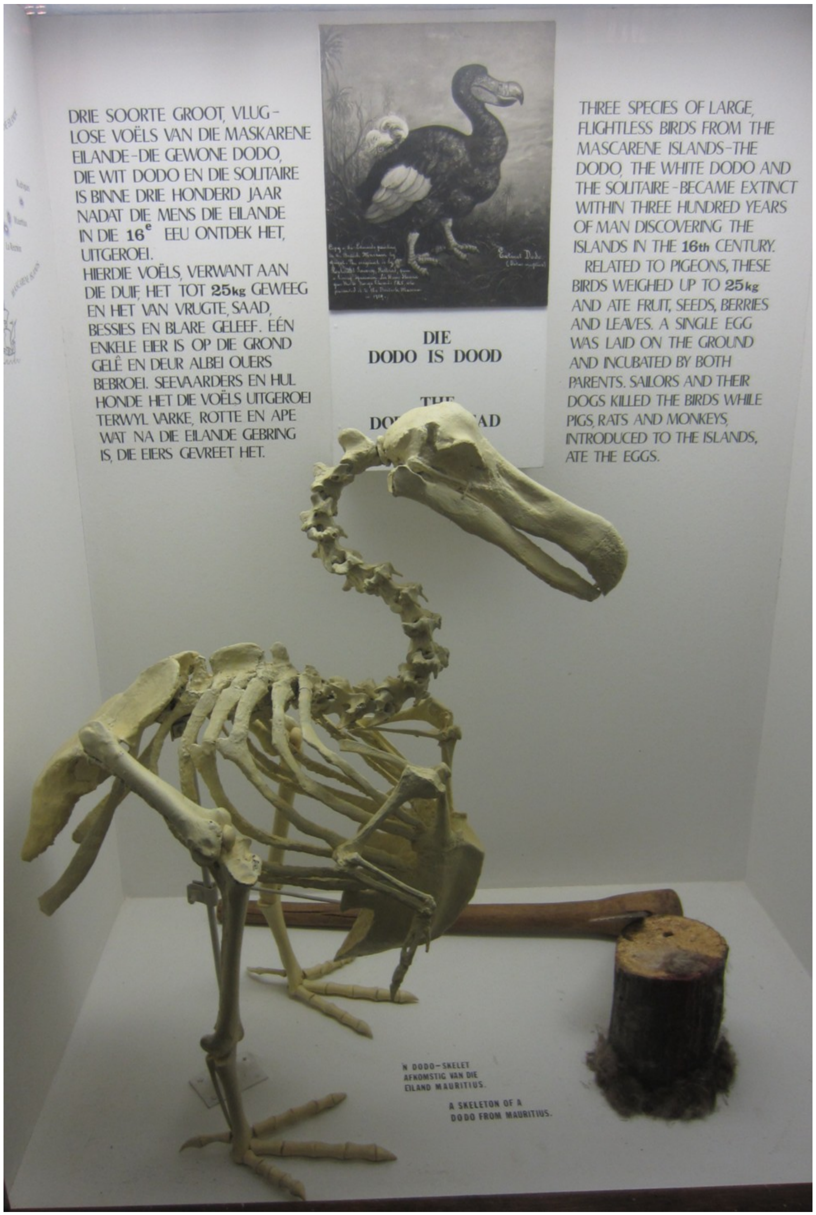
Ditsong Museum of Natural History, Pretoria

Ditsong Museum of Natural History, Paul Kruger Street, PO Box 413, Pretoria 0001, South Africa. Vertebrate Department, Bird Section. Formerly the Transvaal Museum of Natural History.

Information from Tamar Cassidy (pers. comm., 1st June 1998; 6th March 2012)

Raphus cucullatus

TM 39985 white-coloured skeleton on display. The post-axial vertebrae appear to be real, as do other elements (for example the right femur and tibiotarsus), whereas some elements are modelled (the skull, dorsal vertebrae, ribs, pelvis, etc.). The post-axial cervical vertebrae, right femur and right tibiotarsus are pale in colour: they may have been painted or they may represent bones from a non-Mare aux Songes source (pers. obs. from photographs). The right tibiotarsus is mounted back-to-front.


DRIE SOORTE GROOT, VLUG-LOSE VOËLS VAN DIE MASKARENE EILANDE-DIE GEWONE DODO, DIE WIT DODO EN DIE SOLITAIRE IS BINNE DRIE HONDERD JAAR NADAT DIE MENS DIE EILANDE IN DIE 16e EEU ONTDEK HET, UITGEROEI.
HIERDIE VOËLS, VERWANT AAN DIE DUIF, HET TOT 25kg GEWEEG EN HET VAN VRUGTE, SAAD, BESSIES EN BLARE GELEEF. EÉN ENKELE EIER IS OP DIE GROND GELÊ EN DEUR ALBEI OUERS BEBROEI. SEEVAARDERS EN HUL HONDE HET DIE VOËLS UITGEROEI TERWYL VARKE, ROTTE EN APE WAT NA DIE EILANDE GEBRING IS, DIE EIERS GEVREET HET.
DIE DODO IS DOOD
THE DO AD
THREE SPECIES OF LARGE, FLIGHTLESS BIRDS FROM THE MASCARENE ISLANDS-THE DODO, THE WHITE DODO AND THE SOLITAIRE-BECAME EXTINCT WITHIN THREE HUNDRED YEARS OF MAN DISCOVERING THE ISLANDS IN THE 16th CENTURY.
RELATED TO PIGEONS, THESE BIRDS WEIGHED UP TO 25kg AND ATE FRUIT, SEEDS, BERRIES AND LEAVES. A SINGLE EGG WAS LAID ON THE GROUND AND INCUBATED BY BOTH PARENTS. SAILORS AND THEIR DOGS KILLED THE BIRDS WHILE PIGS, RATS AND MONKEYS, INTRODUCED TO THE ISLANDS, ATE THE EGGS.
'N DODO-SKELET AFKOMSTIG VAN DIE EILAND MAURITIUS.
A SKELETON OF A DODO FROM MAURITIUS.

Dodo skeleton, Ditsong Museum of Natural History (© Martin Kalfatovic, 11th June 2012).

Dodo skeleton, Ditsong Museum of Natural History (© Martin Kalfatovic, 11th June 2012).

Also under TM 39985 are: one distal (3rd or 4th) and one mid-cervical vertebra, two caudal ends of left mandibular ramus. Card and label indicate locality Mauritius. One mandible fragment bears '148' in black ink on a white background laterally and a printed label '148' medially and the other the same, but with '149' instead of '148'.

Natural Science Museum, Durban

Natural Science Museum, 1st Floor, City Hall, Smith Street, Durban, South Africa

Raphus cucullatus

2366 complete skeleton, constructed by Etienne Thirioux, from searches made in the region of Pouce Mountain, Anse Courtois, Vallée des Prêtres and Corps de Garde Mountain (Pitot 1914). However, according to Chubb (1919b), Thirioux mounted the skeleton from bones found in Mare aux Songes, "guided to a great extent, no doubt, by the skeleton in the Museum at Port Louis, Mauritius". Leon Claessens (see below) is "convinced that this skeleton, like the one in Mauritius, comes from a single dodo" (*vide* Medley 2012), and it is likely, from the preservation and colouration of the bones, that the specimen is from cave material (pers. obs.). According to Biedlingmaier *et al*. (2013), the skeleton is partially associated (see below) and was collected from a cave by Thirioux at the end of the nineteenth century. It was purchased from Thirioux's heirs, through the assistance of George Antelme[132] (an heir of Thirioux), "who takes an interest in the Museum at Port Louis, Mauritius" for £40 (Chubb 1919a, p.97; Chubb, monthly report for February 1919). A letter from Donald d'Emmerez de Charmoy to Ernest Charles Chubb, dated 1914, mentions Chubb's interest in acquiring a dodo skeleton (Durban Natural Science Museum Library Archives):

Department of Agriculture
Réduit
25[133]/4/14

Dear Mr Chubb,
Referring to the third paragraph of your letter I am sorry to inform you that I have not yet had a meeting of the Board of the Museum and through pressure of work have been unable to lay before it your proposals respecting mutual exchanges between the museums.

Any how you can rely on me for securing for your Institution a complete skeleton of the Dodo, there is a beautiful one in the possession of Mr Thirioux for which he wants £40

If for reasons I cannot foresee we are not in a position to purchase it for you in exchange of specimens offered by you, you will be able to arrange with M Thirioux

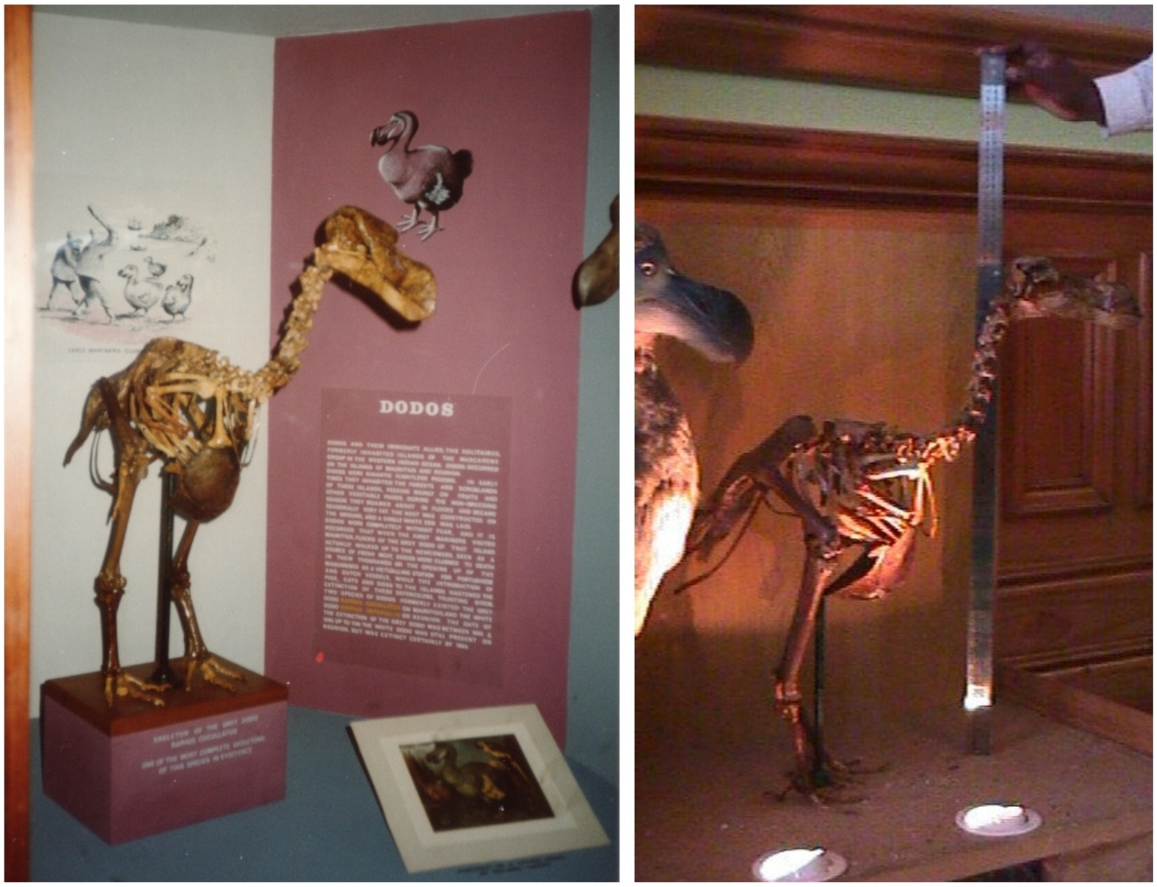
I promise you that in the mean time he will not sell it to any other individual or scientific Institution It will be possible to forward you photos of the skeleton altogether with a good description for the state of the various bones.

Yours truly
[D'Emmerez de Charmoy]

---

[132] Georges Antelme (1870-1938) malacologist on Mauritius, Chairman of Museum Desjardins.

[133] Or 28.



The Durban dodo skeleton (*left*: © Jan den Hengst; *right*: © David Allan).

Chubb, Director of the Durban Museum, described the acquisition of the Durban skeleton:

> About 1912, a Government entomologist of Mauritus and a member of the governing body of the museum there, called to see me. He said they were desirous of obtaining selections of South African natural history specimens for their museum and he asked my advice as to how to procure them.
>
> Knowing that the island of Mauritius was the home of that most interesting bird, the Dodo, which became extinct more than 250 years ago, I made enquiry of him as to the possibility of getting a skeleton of it – realizing that the chance was very remote on account of its great rarity. To my agreeable surprise he said that there were two skeletons in the Mauritius Museum, one belonging to the Museum and the other on loan from a French hairdresser residing there [Etienne Thirioux]. This man was an amateur naturalist. He had collected the bones on the Island and had assembled the skeleton with great care and accuracy.
>
> I became very keen to secure this skeleton for the Durban museum; and as I saw little possibility of being able to arrange its purchase without having it available in Durban for inspection, I suggested to this visitor that he arrange with the Museum authorities in Mauritius to acquire the skeleton and to send it in exchange for certain duplicate specimens we possessed that the Mauritius Museum authorities were anxious to acquire.
>
> When he returned to Mauritius, he did all he could to carry out this proposal; but as the Mauritius Museum authorities were short of funds at the time and the limited amount at their disposal was required for another purpose, the proposed exchange did not materialise.

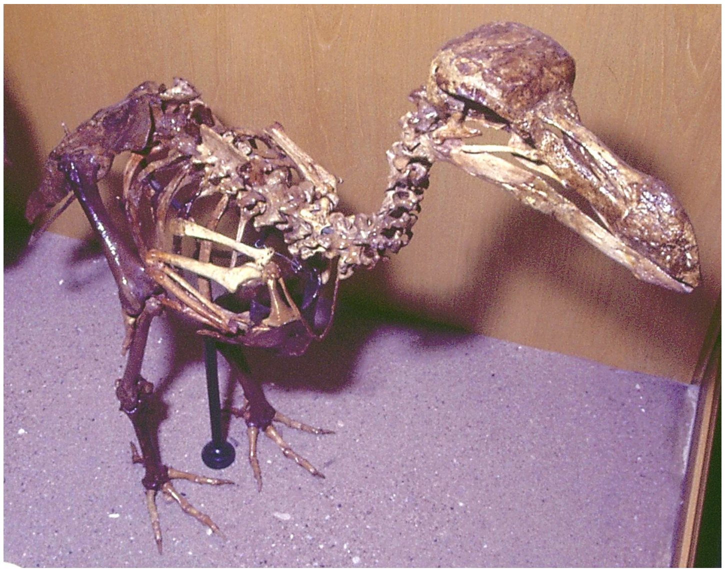
A year or two later, when a Durban medical practitioner was about to visit Mauritius, his former home, he had been asked by some of his friends there to take with him, if possible, some natural history specimens from South Africa that were desired by the Museum authorities there. He came to consult me on the matter; and I told him of my keen desire to obtain the Dodo skeleton and of my offer to exchange for it natural history specimens we no longer required. I asked him to endeavour to bring about this exchange; and although he did his best, he was also unsuccessful.

After a further lapse of some years, a gentleman who was then taking a very active interest in developing the Mauritius Museum wrote to me expressing the desire for representatives of various groups of South African natural history animals for adding to that Museum. In my reply, I told him of my desire to obtain the Dodo skeleton; and as the efforts that I had made to secure it by exchange had failed, I asked him to endeavour to persuade the owner of the skeleton to send it to me on approval, feeling confident that with it in my possession I should have no difficulty in arranging its purchase.

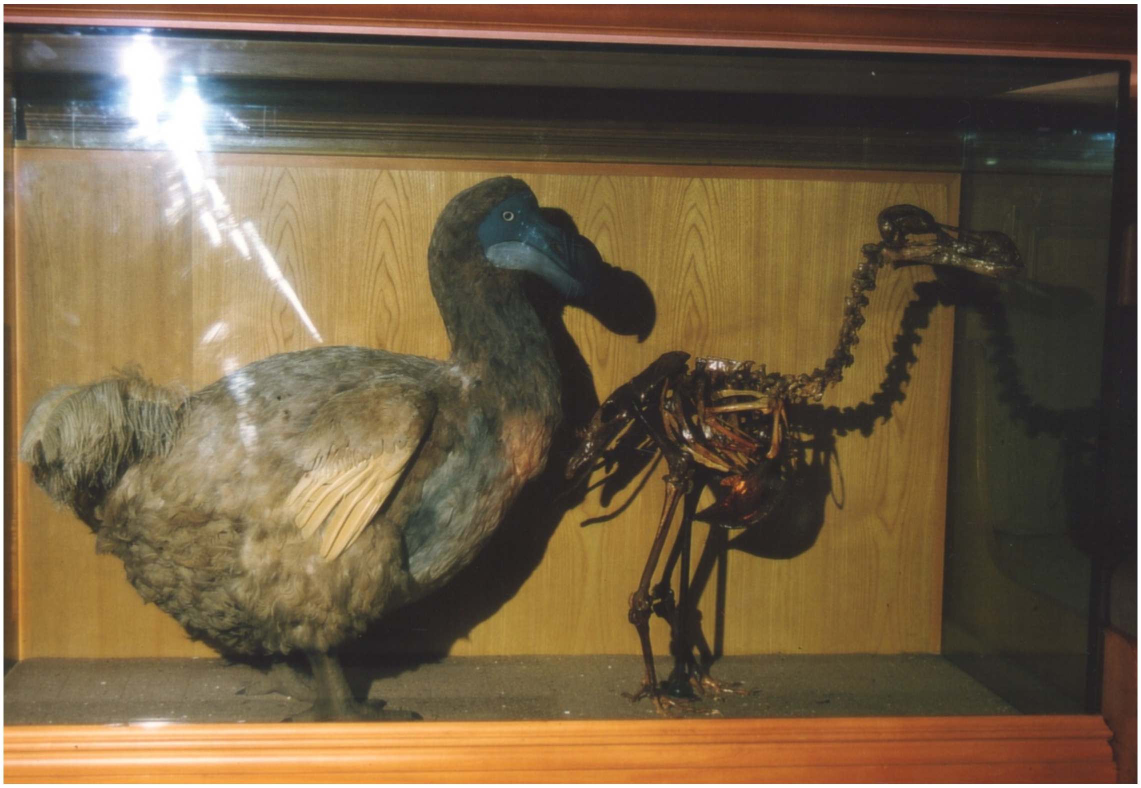
He replied saying that the hairdresser-naturalist who had articulated the skeleton had died in the mean time; but he had interviewed his widow and, although she was strongly opposed to the risk of sending the skeleton to Durban on approval, he succeeded in overcoming her objection to the extent that she agreed on condition that her son, who was then living on the neighbouring island of Rodrigue, was agreeable. My correspondent wrote to the son and, using all his powers of persuasion, succeeded in obtaining his approval.

The skeleton was carefully packed and sent in charge of the captain of a vessel leaving Mauritius for Durban; and, in response to a cable I received [dated 13th December 1918, from Antelme: see below], I went aboard the vessel [the *Berwick Castle*] when it docked at Durban to receive the case containing it from the captain. He was glad to be relieved of the responsibility of it, as those who had entrusted it to his care had impressed upon him its frail nature, great value, and scientific interest. He had kept it in his cabin throughout the voyage; and had said it was seldom out of his sight.

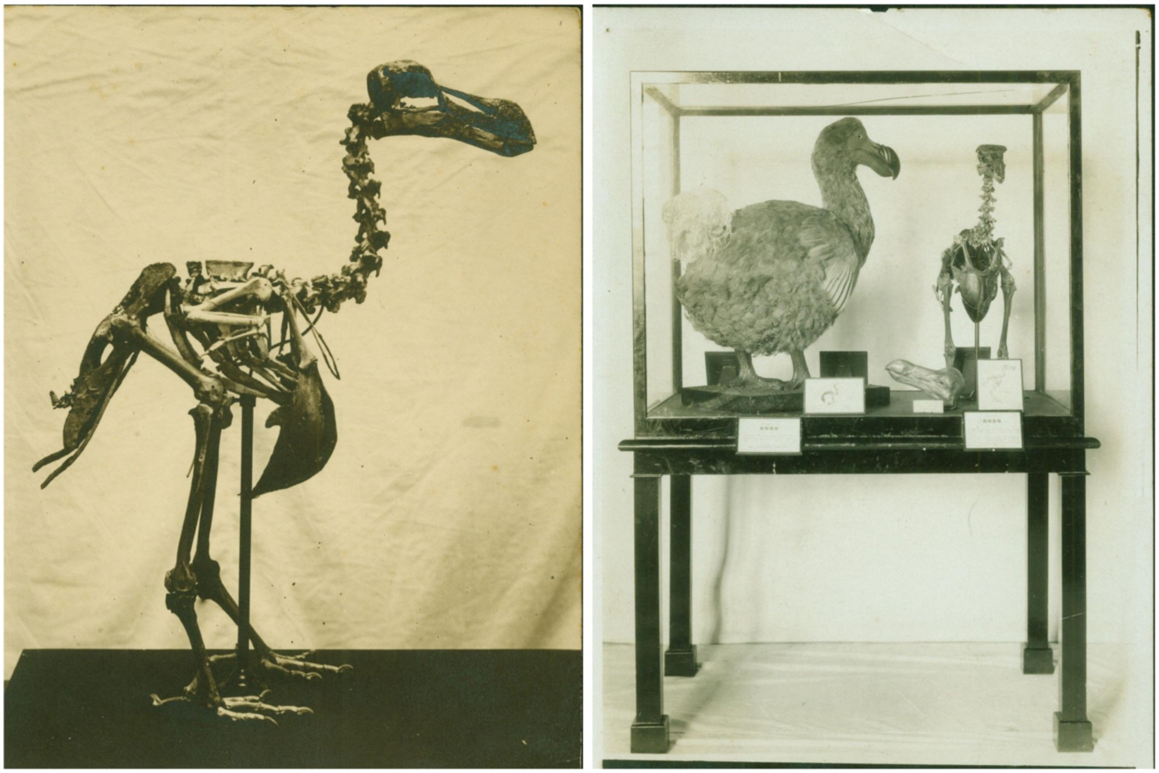
Needless to say, the city Council readily agreed to my recommendations for it to be purchased for the Durban Museum [for £40: L.O.V.G. 1937]. That was in January 1919 more than six years after my initial efforts to acquire it (Chubb 1948, pp.189-190).



The Durban dodo skeleton (© Natural Science Museum, Durban).



The Durban dodo skeleton and reconstruction (© Jan den Hengst).



The Durban dodo skeleton (© Natural Science Museum, Durban).

Letter from Georges Antelme to Chubb, 18th November 1918 (Durban Natural Science Museum Library Archives). Stamped “Durban Museum Nov 12 1918”.

18th of Nov 18

Dear Mr Chubb,
The skeleton of the
Dodo has been put in a case
& prepares to be sent to you
by a good opportunity –
It will be a pleasure
to me to ship it on Board the
Castle line. When I will be
ready to send it to you, on

the day of the departure of
Mauritius, I will cable to
you & you will be kind
enough to go & have it
delivered to you by the
captain to whom I will
recommend the Dodo.
As it is very fragile
I shall feel very grateful if
you could come yourself
on board the steamer on
its arrival to Durban

to take delivery of the skeleton .
Yours very sincerely
G Antelme

PS. Thanks very much for the
photo of the Elephant . It is
a splendid addition really
to your collections . I hope
one day I will come & pay
a visit to your country.
GA

Telegram, dated 13th December 1918:

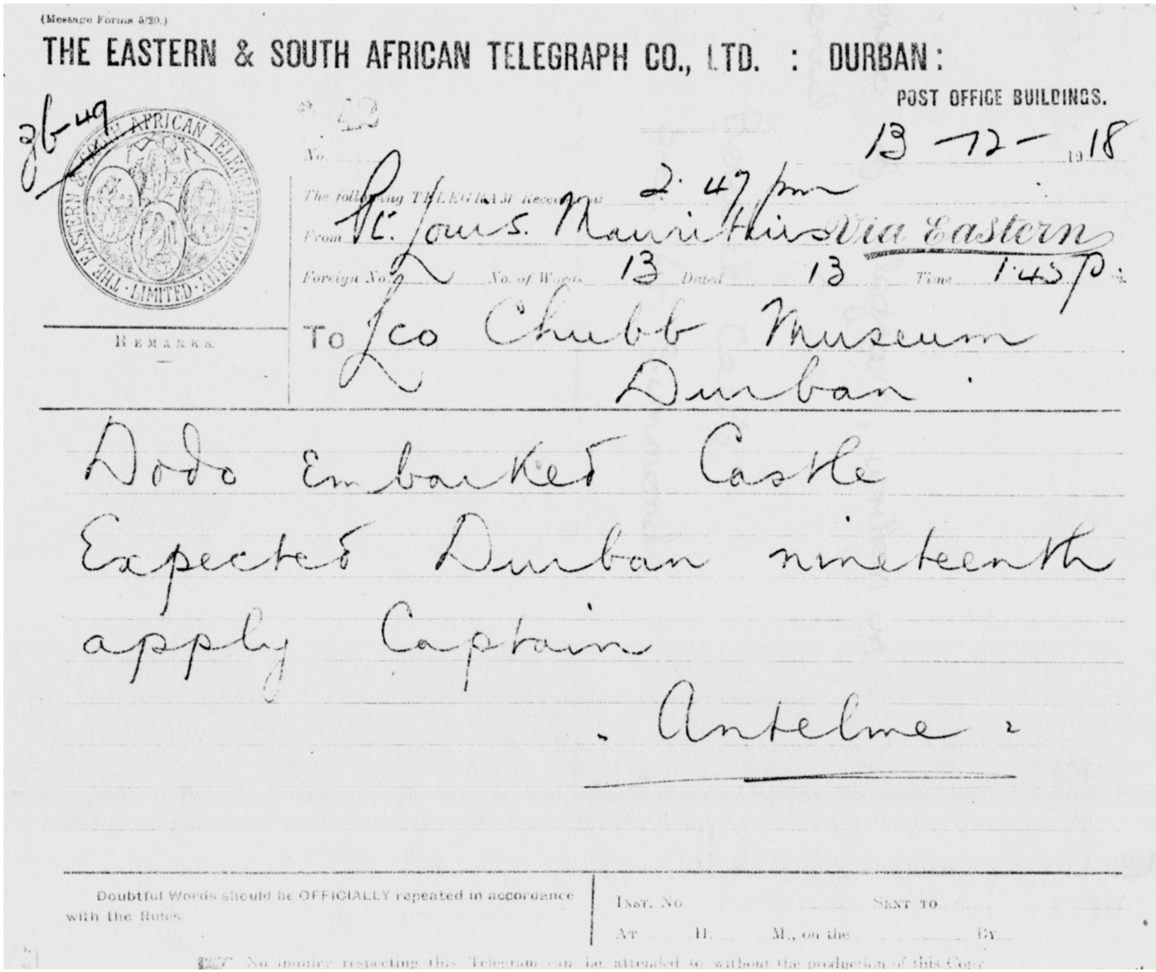
THE EASTERN & SOUTHERN AFRICAN TELEGRAPH CO., LTD : DURBAN :
POST OFFICE BUILDINGS.
No. 43 13-12-1918
The following TELEGRAM Received at 2·47 pm
From Pt. Louis. Mauritius *Via Eastern*
Foreign No. *No. of Words* 13 *Dated* 13 *Time* 1·45/0*m*
To Lco Chubb Museum

Dodo Embarked Castle

Expected Durban nineteenth
apply Captain
Anteleme.

On reverse (in pencil):

Berwick Castle
See Lt. Simmonds



(Message Forms 5/20.)

THE EASTERN & SOUTH AFRICAN TELEGRAPH CO., LTD. : DURBAN:

POST OFFICE BUILDINGS.

26-49

No. 13-12-1918

The following TELEGRAM Received 2.47 pm

From St. Louis. Mauritius via Eastern

Foreign No. No. of Words 13 Dated 13 Time 1.45 p.

REMARKS.

To Co Chubb Museum
Durban.

Dodo Embarked Castle
Expected Durban nineteenth
apply Captain
Antelme.

Doubtful Words should be OFFICIALLY repeated in accordance with the Rules.

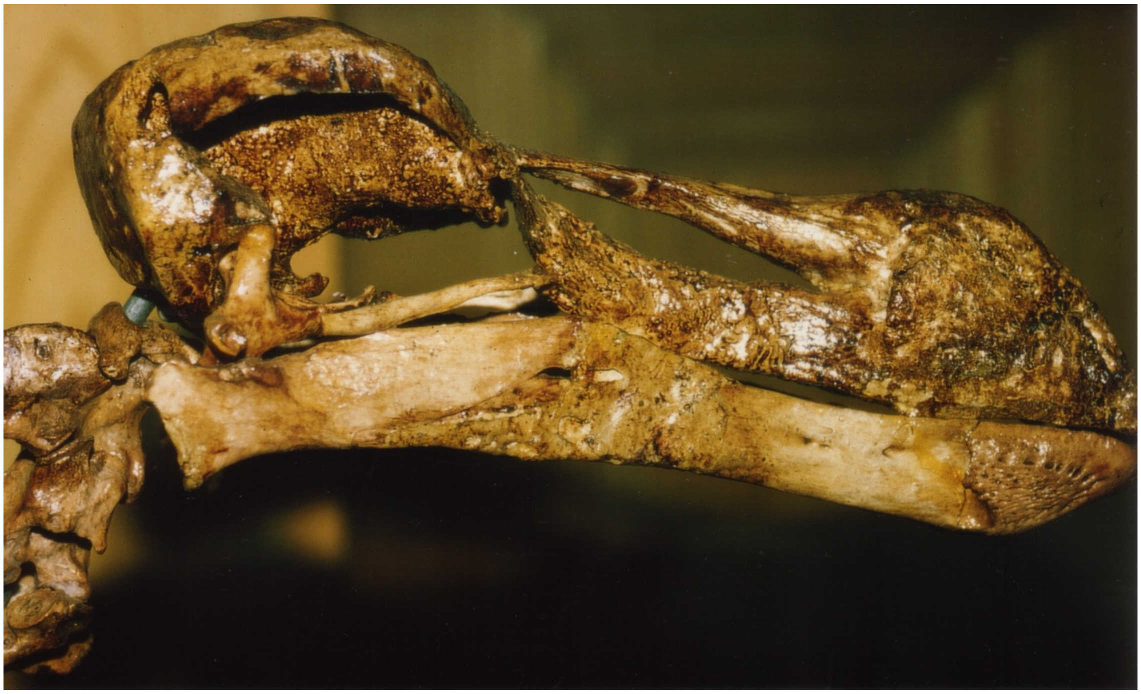
Inst. No. Sent to
At H. M., on the By

No inquiry respecting this Telegram can be attended to without the production of this Copy.

Telegram, dated 13th December 1918 (see above) (© Natural Science Museum, Durban).

The sum of £40 was voted by the City Council of Durban to buy the skeleton, and this was accepted. The skeleton was accessioned on 31st January 1919 and was remounted by Assistant Boyce of the museum "in a more natural attitude" in a small plate-glass case, made by Boyce, "to enable it to be exhibited to the advantage it deserves" (Chubb 1919c, p.1). It was on display in a case in 1928 (Chubb 1928). The dodo skeleton was later installed alongside a life-size model of the dodo "which had been in storage for many years" (Anon. 1985) and is currently displayed in a case along with the dodo reconstruction in the museum's foyer (Quickelberge 1987).

The cranium of the skeleton is modelled in plaster and the sternum probably originated from Mare aux Songes. The tenth cervical vertebra and a few other elements are apparently substitutes, albeit from other cave material, judging from the surface texture of the bones (Claessens & Allan 2012). The skeleton has the atlas, the 13th cervical vertebra, the 18th vertebra, six caudal vertebrae plus a pygostyle, patellae and a rib on the second synsacral (second pelvic) vertebra. The right wing (which is more complete that the left one) possesses a radiale, phalanx digiti alulae and phalanx digiti minoris. Tarsal sesamoids are also present (pers. obs.; Biedlingmaier *et al*. 2013). The 13th cervical vertebra has a more developed dorsal spinous process than that of the one figured by Newton & Gadow (1893; Government Museum of Mauritius skeleton). The 18th vertebra is more complete than the one figured by the above authors (*ibid*., pl.xxxvii, figs.2a-2c). The Durban skeleton has a short rib on the 14th vertebra, sternal ribs on the 15th to 18th vertebrae, an almost sternal rib on the 19th and a rib on the 20th vertebra (which is absent on the left side, although the costal facets is present on the synsacrum for this rib). Biedlingmaier *et al*. (2013) reported: "Our examination has revealed that the skeleton was remounted in 1919 and that a cervical vertebra at the base of the neck (approximately C10) has been removed and likely discarded at this time. The braincase and portions of the mandible and sternum of the specimen are reconstructed, and possibly some of the pedal phalanges. Although the specimen appears to be a composite of at least two individuals, some parts of the skeleton, including the pectoral girdle, appear to belong to a single individual" (p.87) and Claessens & Allan (2012) noted that "Many of the skeletal elements fit together perfectly and clearly come from the same individual" (p.41). The Durban Museum also holds, which it had done for around ten years when Chubb wrote his paper (1919), an incomplete pelvis, several vertebrae and leg bones (Chubb 1919a). A pelvis from the Durban museum possesses a pair of costal facets for the articulation of a pair of ribs on the 20th vertebra (*ibid*.).



The Durban dodo skeleton (© Jan den Hengst).

The Durban skeleton was surface-scanned in 3-D using a Konica Minolta Range7 non-contact laser surface scanner by Leon Claessens (from the Massachusetts College of the Holy Cross and Project Director of the Aves 3D Database, on a one year fellowship at Naturalis, Leiden, 2012), at a resolution of approximately 100 microns (Biedlingmaier *et al*. 2013). Claessens and his students Jennifer Leavitt and Andrew Biedlingmaier visited Durban in January 2012 in order to make the 3-D scan of the skeleton, over a period of two weeks: "The heavy glass cover of the exhibition case was carefully lifted by means of suction cups and the metal bar that had anchored the skeleton to the foor of the display case since 1919 was meticulously unscrewed. The fragile skeleton was then painstakingly transported to a side room" (Claessen & Allan 2012, p.41) where it was scanned *(ibid*.; Anon. 2012; Clarke 2012[134]). Medley (2012) reported: “Over the next two weeks [the article is dated 13th January], Claessens will be using 3D laser surface scanner technology to examine the skeleton. The surface scanner consists of a high-resolution camera and a laser, which are finely tuned to one another. As the laser shines on part of the skeleton, the camera will photograph that area, scaling down to one millionth of a metre. ‘The entire skeleton will be scanned like this,’ said Claessens.” The skeleton was then reconstructed digitally using the 3-D editing software Rapidform. Using this software the sacrothoracic angle, limb and rib positions were able to be corrected (Biedlingmaier *et al*. 2013). The digital scan data will be deposited in the online site Aves 3D (http://Aves3D.org) (Biedlingmaier *et al*. 2013).

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[134] This article contains numerous inaccuracies, amongst others that the Durban skeleton is about 1m tall and "and is considered to be a young specimen". It also states that the two Thirioux dodo skeletons (Durban and Port Louis) were

David Allan, Curator of Birds at the DNSM, said: “Of particular interest would be to confirm that the Durban skeleton is the ‘partner’ of the one in the museum in Mauritius, just how complete it is, exactly which elements are unique to, or at least best preserved in, the Durban specimen, and whether or not it contains elements of more than one individual bird” (Anon. 2012).

Figured: Chubb (1919a, pl.xvii [reproduced: Parish (2013, fig.5.49)]); 1919b, p.1; 1948, p.189). Text-fig. 1 of Chubb (1919a) shows the caudal vertebrae and pygostyle of the skeleton. Quickelberge (1987, p.86); *Amuse News* (no.20, August 1992, p.9); Anon. (2012); Claessens & Allan (2012, pp.39, 40, 41 [3-D digital scan]); Clarke (2012); Medley (2012); Durban Natural Science Museum postcard.

The following specimens have not been located in the Durban collections. They may have been discarded by Phillip Clancey when he became director in 1952 (all avian specimens were discarded with the exception of the Millar egg collection and a green barbet skin; David Allan, pers. comm., 3rd May 2012). Thus, only the skeleton (2366) remains.

Several vertebrae
Pelvis (incomplete)
Hindlimb bones
Coloured cast of the Tradescant head. Formerly displayed with the skeleton (Chubb 1919b; see figure above).

In Chubb’s Annual Report for 1913 he mentioned that “A number of bones of the extinct Dodo which had been in the Museum for several years were sorted out and wired together. It was then found that we possessed two practically complete legs, a pair of Scapulars, clavicles. lower jaws, and a long series of vertebrae. A special exhibit was made of these in a section of one of the table-cases” (Annual Report for the Munical Year, 1914, p.xvi).

In a letter dated 4th September 1922 Rowland Ward offered Chubb a dodo skeleton that the latter had seen on his last visit to England, from May to September 1920, for £185 (Quickelberge 1987). In his monthly report from September 1920, Chubb mentioned that he had seen the skeleton at Rowland Ward’s shop. He also purchased a reconstruction of the dodo at this time. The identity of this skeleton and its fate are unknown. Letter from Rowland Ward to Chubb, 4th September 1922. Typed on headed notepaper: “Rowland Ward, Ltd. Naturalists 167, Piccadilly. W.1.” (from facsimile in Quickelberge 1987, p.87):

4th. September 1922.

Durban Museum.,
NATAL.

E. C. Chubb Esq.,

---

found in “found in a volcanic cave more than 100 years ago” and that the “birds are thought to have fallen through a crevice in the rock, becoming trapped” – there is no evidence to support this, and, indeed, the colouration of the bones differs between the two skeletons. David Allan, Curator of Birds at the DNSM, remarked: “What makes these two skeletons so special is that they were apparently discovered in a cave [the locality of which has never been revealed] and are relatively recent in origin” (Anon. 2012).

Dear Sir,

When you were last in England, you saw a skeleton of the Dodo and we wonder if you are still interested in the purchase of same.

Subject to being unsold, we make you a special offer of it, for £185. -.-.

(One Hundred and Eighty five Pounds).

Thanking you.

Yours faithfully.

[Rowland Ward]

East London Museum

319 Oxford Street, Southernwood, East London, South Africa

"*Raphus cucullatus*"

[no registration number] 'Dodo' egg. Probably from *Struthio camelus*. It was given to the museum by Marjorie Courtenay Latimer. The egg was formerly on display, but is currently held in the museum strongroom. Probably not from a dodo – the eggshell mass suggests that is actually from an ostrich (*Struthio camelus*; Kitchener 1993a). Vinson (1956) stated that it "must remain, in the absence of good evidence of its origin, *incertae sedis*" (quoted in Cheke & Jones 1987, p.422).

The egg is large, light cream coloured, matte, with long grooves (similar to those occasionally in bird eggs) thought by Latimer to be from impressions created in the uterus or from insufficient lime and contraction of the shell. The pitting is "coarse, close and reddish in colour" (Latimer 1953, p.210). Egg measurements: 107mm x 93mm (Latimer 1953); eggshell mass 137.1g (Kitchener 1993a). Kitchener (1993a) calculated that the body mass of the parent bird would have been 126kg.

In the possession of Marjorie Courtenay Latimer, director of the East London Museum, who considered it to be a dodo egg. Given to Latimer by her great-aunt, Lavinia Harriet Bean (Harriet Lavinia Bean 1841-1937, married Tindall Walton).[135] Acquired by Lavinia's father, Leonard Orlando Bean (1806-1892) of Port Elizabeth, from Captain van Syker. Van Syker obtained the egg from "an old resident [of Mauritius], the descendant of a ship-wrecked sailor, who had chosen to remain on the island" (Latimer 1953, p.208).[136] This resident had two of these eggs in his collection, but reluctantly gave one to Van Syker, who, on his return to South Africa, presented the egg to Miss Bean on 15th January 1847. According to Shales (2011), Lavinia Bean stated that "she had been given it by her father, Mr LO Bean, in 1847 and it had been in the family for 105 years". However, this time period does not agree with the above facts.

It was loaned in 1931 by Latimer (Grihault 2005).

The egg was examined at the South African Museums Conference in East London in 1945, and at the South African Museum's Conference in 1952, and considered to be an abnormal ostrich egg. Robert Broom, and later Latimer, considered the pitting pattern to closely resemble that of *Treron calva delandii* (*Vinago delandeii delandeii*) (Latimer 1953). "Dr Jeffreys" did not agree with the identification as an abnormal ostrich egg and suggested that Latimer write a paper to be read at the South African Association for the Advancement of Science at Cape Town in July 1952, which she did. Luna de Carvalho (1989) noted that there was some doubt that the East London Museum egg actually belonged to a dodo. Lee Durrell, of the Jersey Wildlife Conservation Trust, examined it in 1997 and suggested that it might be from an aepyornithid (Grihault 2005).

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[135] According to Laing (2010) and Shales (2011), the egg was given to Latimer by her great-aunt in 1915.

[136] Although Laing (2010) stated that the egg was given to Lavinia by "a family friend who worked as a sea captain and made regular trips to [...] Mauritius where he said he found the egg in a swamp".

The egg was thought by Latimer (1953) to be dissimilar in shape, form, pitting, pattern, texture or colour to the approximately 155 abnormal ostrich eggs she examined (*Struthio camelus* and *S. camelus* x *S. australis*[137]), although some did approach similar dimensions.[138]

X-rays show the egg has no contents (Den Hengst 2003). Kevin Cole, of the East London Museum, announced (1998) that the museum intended to conduct DNA testing on the egg to establish its origin. It was due to be tested in either 2006 or 2007 by geneticists and University of Stellenbosch scientists (Govender 2006) and Kevin Cole is currently planning to have DNA analysis conducted on the egg (Kevin Cole, pers. comm., 8th April 2008).

However, there has recently been a court case between Michael Allen Buchholtz (great nephew of Latimer) and Diedre Elizabeth Trudy Buchholz (niece of Latimer) and the East London Museum (Case No.: ECD 2007/09; date heard: 27th October 2009; date delivered: 26th August 2010).

Latimer had specified in December 1996 and 1997 that the family's permission had to be obtained prior to any research being conducted on the egg. The East London Museum agreed to this.

Gill Vernon, Museum Director, informed Latimer on 31st August 1999 that the egg was a financial liability to the museum, to which Latimer replied on 22nd September 1999 that the egg should be returned to the family within one month.

A loan agreement was then established between Latimer and the East London Museum on 9th November 1999. The egg belongs to the Latimer family and is on loan to the East London Museum, under conditions that it is only to be viewed under supervision of a senior museum staff member and that it is not to be damaged, loaned or sold.

Michael and Diedre Buchholtz requested the return of the egg, referring to a letter written by a representative of the East London Museum to Diedre Buchholtz, dated 3rd August 2005:

> Dear Mrs Buchholtz,
> In the 1930's when Dr Marjorie Courtenay-Latimer was curator of the East London Museum, she loaned the Museum an egg, which she had been led to understand was a Dodo egg. In order to display the egg within an effective setting, the Board of Trustees made funds available for the construction of a model of a dodo. Since then the egg has been publicised as the only known dodo egg in the world but, unless this is verified, we cannot continue to make this statement.
>
> Until recently there have been no scientific tests available which could confirm that Dr. Courtenay-Latimer's identification of the dodo egg was correct. However the developments in DNA analysis have now made it possible to establish its scientific authenticity.
>
> The Museum as an institution has a responsibility to its public to obtain as much information as possible about its exhibits and we feel that an analysis of the egg should take place as a matter of urgency. It would only require a small particle of the shell from the already existing hole for the DNA testing to take place. As the egg is only on loan to the Museum, we require your family's agreement for such testing to take place.
>
> We are sure you will understand that if the egg's authenticity is not established, as a scientific institution we would feel it incumbent upon ourselves to return the egg to the family. (http://www.saflii.org/za/cases/ZAECGHC/2010/74.html accessed 18 December 2012).

In 2006 the East London Museum asked for permission from the Bucholtzs to transport the egg by hand to

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[137] *S. australis* is currently classified as *S. c. australis*.

[138] *E.g.* an abnormal ostrich egg examined by Latimer: 110mm x 96mm (Latimer 1953).

Stellenbosch University for examination. Dr. Bowie of Stellenbosch University suggested the following investigative methods: physical examination of the egg in a laboratory, electron microscopic analysis and DNA testing. Deidre Buchholtz wrote to the East London Museum on 8th May 2006, concerned over the potential damage to the egg during testing and stating that the loan agreement would have to be updated. The outcome of the court case was that the egg was to remain in storage at the museum, where it still resides (Parkes 2010, Shales 2011). Analysis of the egg has not been precluded (Parkes 2010) and if testing is to be conducted it will be done either at Cape Town or Oxford (Shales 2011). Regarding DNA analysis, Mcebisi Magadla stated that "the test would involve breaking off a piece of egg the size of a pen nib from the outside of a hole the size of a five pence piece in its surface" (Laing 2010).

A cast of the egg is on display at the East London museum, in a reconstruction of a nest alongside a reconstruction of the dodo (Shales 2011).

Sandi (2010) http://www.saflii.org/za/cases/ZAECGHC/2010/74.pdf [accessed 28 October 2010]

Figured: Latimer (1953, figs.1, 3 [reproduced: Parish (2013, fig.6.14)]). Cast figured: Kitchener (1993b, p.27); Shales (2011).

Replica of the East London Museum 'dodo' egg on display (© Frode Inge Helland, 18th March 2007).

South African Museum

South African Museum, 25 Queen Victoria Street, PO Box 61, 8000 Cape Town, South Africa

Raphus cucullatus

Bones (not on display; listing from Denise Drinkrow, pers. comm., 14th April 1998):

Cranium (with occipital condyle, but damaged)
Premaxilla
Left and right mandibular rami
Fourteen cervical vertebrae
Four dorsal vertebrae (three fused, presumably the notarium)
Sternum
One left and two right scapulae
Left coracoid
Left humerus
Two pelves, incomplete
Two left and two right femora
Two left and two right tibiotarsi
Left fibula
Two left and two right tarsometatarsi

Dodo bones, enough to compose an almost complete skeleton, were purchased via Edward Newton by Edgar Leopold Layard (1824-1900), Director of the South African Museum. In 1865 Layard had sent £15 for the bones: "I have just had a letter from Layard, he has sent me up £15 from the Cape [= South African] Museum for the purchase of Dodo's bones" (letter from Edward Newton to Alfred Newton, 7th November 1865, 24/3, p.209). However, Newton only paid Clark £12 for the specimens (Haarhoff 1992): "I have no more dodo news, beyond that I bought for the South African Museum a very fair set for £12 & despatched them by the last Cape mail, and have £3 in hand of theirs still to spend. I went to see Mr Clark to get them, and he gave me the pelvis of I think a Gallinula found in the same marsh, what may be an Ardea. It is in good preservation [p.222] and hence convinces me that the smaller bones of the Dodo are still to be found perfect if the place is properly searched. This at present is out of the question, as it has rained almost incessantly for the last month or more down there, & even nearly as long here" (letter from Edward Newton to Alfred Newton, 3rd January 1866, pp.221-222). [letter extracts from Anthony Cheke, pers. comm., 3rd August 2010]. The receipt from George Clark reads:

> Received from the Hon
> Ed Newton, [?] the Sum
> of Twelve Pounds Slg
> for the following bones
> of the Dodo, from Mare
> aux Songes, Mauritius
> 2 Pelves _ 1 Sternum
> 18 vertebrae 1 portion of
> Cranium, 1 Upper & 1
> lower mandible _ 2 ribs
> 3 blade bones 1 Coracoid,
> 1 humerus _ 4 femora
> 4 tibiæ 2 fibulae 4 Tarso
> metatarsi.
> Geo Clark
> Mahebourg, [?]

(from an image given in Haarhoff 1992).

Natural History Museum, Mauritius Institute, Port Louis

Natural History Museum, Ground Floor, Mauritius Institute Building, Chaussée, Port Louis, Mauritius. Dodo Gallery.

The Natural History Museum is located on the ground floor of the Mauritius Institute Building. The Mauritius Museum was founded by Julien Desjardins in August 1829 (Hume 2001) and the Mauritian Society of Natural History was founded on 24th August 1829 (Mauritius Register 1859). The Museum opened to the public on 14th October 1842 in a wing of the old Royal College in Port Louis as Muséum Desjardins, with Bojer as curator (this was the "Museum at the Royal College [Collège Royale]" of Clark 1865). In a letter from Etienne Thirioux to Alfred Newton, dated 21st August 1906, the former mentioned the damage done to the Museum by the cyclone of 1874. In 1880 the Mauritius Institute was established by George Ferguson Bowen and the Mauritius Institute Building was constructed between 1880 and 1884. In January 1885 the collection of Desjardins Museum was transferred to the Mauritius Institute Building (Cheke 2003). The collection comprised mainly marine fauna and birds from the Mascarene Islands. In the 1980s the collections deteriorated badly, with specimens lost or destroyed (Cheke 2003). Hume (2001) stated that during the previous eighty years the collection had gradually disappeared and had been neglected, and that the recently deceased director was even reported to have thrown away specimens.

Robert W. Storer (University of Michigan) compiled a dataset of measurements from 250 elements in the Mauritius Institute (Livezey 1993). Julian Hume also examined dodo and solitaire material from the Mauritius Institute for his doctoral thesis (Hume 2005, 2005 [thesis]), including bones found by Clark and belonging to at least 299 individual dodos (Naturalis Weblog 2006). See also Parish (2013, pp.355, 363).

According to Julian Hume (pers. comm., 11th April 2012), "most of the dodo specimens did not have individual numbers written on them, and as the accession catalogue has decayed to the point of almost illegibility, it was very hard to match specific numbers to specimens. [...] After work at the MAS, [= Mare aux Songes] the Mauritius Institute staff renumbered the dodo bones in their collection, including the new material [that from the 2005-2010 excavations]".

Exhibitions: • Natural History Museum, Port Louis, exhibition on 18th May 2006 (one day only): bones of the dodo and other extinct species found in October 2005 at Mare aux Songes (http://www.mauritiusmuseums.com/article.php?pid=54 [accessed 17 April 2012]).
• Natural History Museum, Port Louis, permanent exhibition: "The World of the Dodo", opened 14th March 2008 (Anon. 2008: Eerste dodo-tentoonstelling op Mauritius). Includes films of the recent Mare aux Songes excavations, images of the dodo and Thirioux's dodo skeleton. The exhibition was created by the Mauritius Museums Council, Nationaal Natuurhistorisch Museum Naturalis in Leiden and the Tropenmuseum, Amsterdam. The Dodo Gallery was created by Marijke Besselink (Tropenmuseum, Amsterdam), Kenneth Rijsdijk (Dodo Research Programme, Naturalis) and Paul Bomers (Zoological Institute, Amsterdam).

The two dodo skeletons and the solitaire skeleton are currently (April 2010) in separate display cases in the Dodo Gallery.

The two dodo skeletons on display in the Dodo Gallery (© Naturalis, 19th August 2010).

Raphus cucullatus

Two skeletons (Sauzier's and Thirioux's)

A further skeleton is currently on loan to the Jersey Wildlife Preservation Trust (1994: Van Wissen 1995).

Numerous bones: including those listed by Rountree *et al*. (1952) as numbers 10,115-10,135, 10,138, 10,142.[139] In total, 2432 bones (excluding Thirioux's and Sauzier's skeletons) are in storage at the Mauritius Museums Council (Deoraz Ramracheya, pers. comm., 15th November 2010). These may include those specimens donated by Thirioux.

The museum contains the largest collection of dodo bones in the world, although it mostly consists of lower-body material (Naturalis Weblog 2008). The museum houses a large number of dodo specimens from Mare aux Songes and localities investigated by private collectors (Van Wissen 1995). According to various sources, the Mauritius Institute collections include: a number of dodo pelves (Naturalis Weblog 2009); about 30-40kg of dodo bones (Wahab Owadally, pers. comm., 30th January 2008); many mandibular rami, scapulae and coracoids (Janoo 1997); 3,000 dodo bones (Groëme 24 juin 2006). Van Wissen (1995) mentioned a "Large amount of Dodo material which still requires scientific processing" (p.80). Parker (2007) stated that the Mauritius Institute currently holds hundreds of dodo bones "in plastic sandwich boxes" on the first floor, "minimally catalogued" (p.72). Meijer *et al*. (2012) noted that all dodo bones from the recent excavations at Mare aux Songes are stored at the premises of the company Omnicane, Mauritius, and all have been numbered and categorized.

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[139] Numbers 10117 L, 10119/6, 10129/1, 10133/1 and 10135/19 were presented to the NHM (London) by the Mauritius Institute in May 1954 (see NHMUK A.3379). Numbers 10131/19, 10131/43, 10131/65, 10131/73, 10131/139 and 10131/151 were 'secured' by Jim Morrow from Jean Vinson, Curator of the Mauritius Institute Museum (see YPM ORN.103123). Numbers 10115/25, 10123/75, 10129/32, 10131/142, 10131/168 and 10133/28 are in the AMNH Ornithology collections. UMMZ also has specimens originating from the Mauritius Institute: 10115/69, 10115/137, 10122/8, 10129/13, 10131/25, 10131/83, 10131/108, 10133/21, 10135/4 (UMMZ 209033). Milan has a tarsometatarsus (MSNM Av 36704) from the collection (number 10115/156).

George Clark sent his first batch of dodo bones to the Museum Desjardins (see Parish 2013, p.240). Rountree *et al*. (1952) listed three skeletons of the dodo at the museum in Port Louis (nos. 919-921). Currently two dodo skeletons are displayed in the main hall of the Mauritius Institute Museum, in glass cases (Sauzier's and Thirioux's; see below). Formerly they were kept in one glass case, along with the solitaire skeleton. At some stage Jean Vinson, curator of the Mauritius Institute, gave a dodo tibiotarsus from Mare aux Songes to Quentin Keynes (Keynes 1956).

Many years ago Carl Jones discovered a box of dodo bones under the dust and fallen plaster. In return for renovating the dodo skeleton in the museum (which must have been either Sauzier's or Thirioux's) he was allowed to keep the bones. These bones were mainly specimens found by George Clark in 1865 at Mare aux Songes, but maybe also had some collected by Paul Carié at Mare aux Songes between 1890 and 1910 mixed in (Julian Hume *ex* Glyn Young, pers. comm., 26th January 2002). These specimens were sent to the Royal Museum of Scotland, Edinburgh. The skeleton was renovated under Andrew Kitchener's supervision and sent back to Port Louis (see photograph in *The Times*, 23rd January 1992, p.5). There were sufficient bones in the box to construct another skeleton, which is that now at Edinburgh. A further skeleton was made up from the rest of the bones, supplemented with plastic replicas, and this was given on long-term loan to Jersey by the Mauritius Institute for their work on Mauritius (Glyn Young, pers. comm., 26th January 2002; according to Van Wissen (1995) this was in 1994). The Jersey skeleton (see above) was constructed in the late 1980s (Wahab Owadally, pers. comm., 30th January 2008) by the National Museums of Scotland. Andrew Kitchener was in charge of the restoration and Peter Summers, taxidermist at the National Museums of Scotland, created moulds of original bones to make polyster resin replicas (information from the Durrell Wildlife Conservation Trust museum display).

Figured (no catalogue number given): four left and two right tarsometatarsi from subbasin 0 (Hume *et al*. 2014a, fig.5 [photo courtesy of Beth Shapiro]).

Sauzier's skeleton

Composite skeleton, composed of bones from different individuals collected by Théodore Sauzier, acting for the Government of Mauritius, in 1891-1892 (or 1889) at Mare aux Songes (Cheke 2003; see Parish 2013, pp.252-253). Sauzier sent these bones to Edward Newton and the skeleton was mounted at the University Museum, Cambridge, to "be ultimately deposited in the [Government] Museum of Mauritius at Port Louis" (Newton & Gadow 1893, p.283). The skeleton was then sent to Alphonse Milne-Edwards in Paris. In 1895, following his return to Paris, Sauzier sent the skeleton to the *Société Royale des Arts et Sciences de l'Ile Maurice* along with a copy of Savery-Berlin; these were deposited in the Natural History Museum at Port Louis (Newton & Gadow 1910; Chubb 1919b; Pitot 1914). Most of the material found by Sauzier, and donated by him, is in the Port Louis Museum (Vinson 1968).

This skeleton was mentioned in letters from Etienne Thirioux to Alfred Newton (dated 27th September 1899 and 12th July 1900) as being near complete. The skeleton originally lacked an eighteenth vertebra (which was unknown at the time of mounting, and was replaced by a cork: D'Emmerez de Charmoy 1903),[140] caudal vertebrae, alar phalanges (except the proximal phalanx of the major digit) and patellae. As it was incomplete it was augmented with bones from Thirioux's collection that he had donated to the museum (Grihault 2005). The skeleton was recently renovated (see above) in eight weeks by Peter

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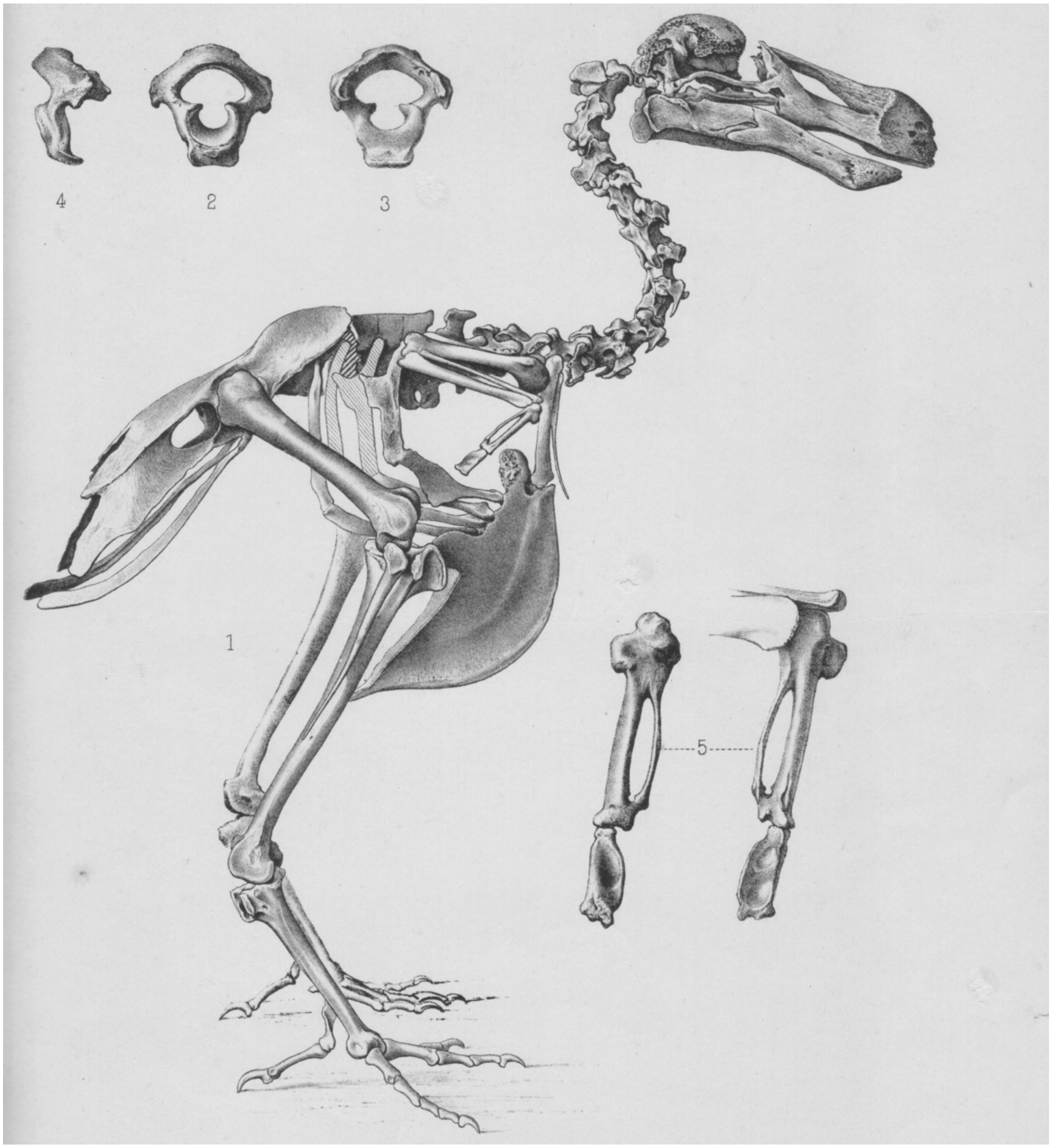
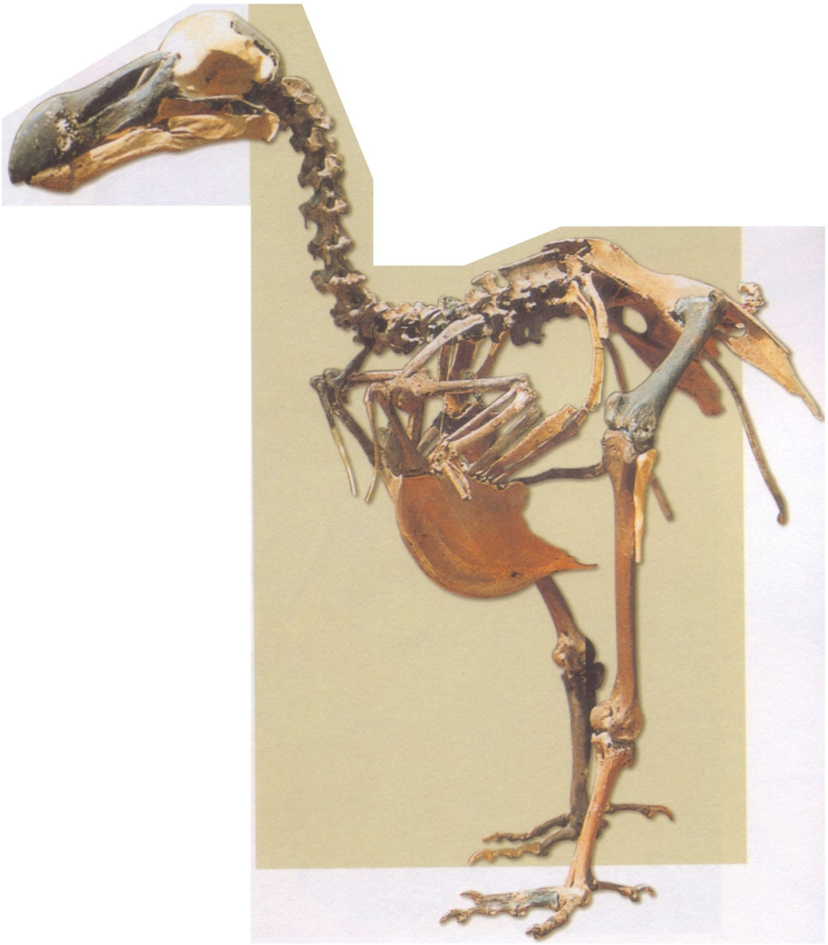
[140] It is shown cross-hatched in Newton & Gadow's figure (1893, pl.xxxvi, fig.1). D'Emmerez de Charmoy (1903) stated that Thirioux's dodo bones, "if the Museum could acquire them would absolutely supplement the skeleton which is there, which would be then an excessively important single part" (p.6).

Summers of the National Museum of Scotland, Edinburgh, and was returned to Mauritius by the National Museum of Scotland in January 1992 (*The Times,* 23rd January 1992). Formerly kept in a glass case with Thirioux's dodo skeleton, it now has a case of its own.



Sauzier's dodo skeleton (Newton & Gadow 1893, pl.xxxvi).



Sauzier's dodo skeleton (© Jameel Peerally).

A handwritten note accompanying some dodo bones in the collection at Cambridge (UMZC 415.K) lists the bones put into the skeleton commissioned for Mauritius:

> Bones of Dodo t be mounted for
> Mauritius Commission
> Cranium , beak , lower jaw, jugals,
> quadrates , palatines pterygoids –
> vertebræ complete , except
> 7th Dorsal, & tail bones –
> Pelvis
> Sternum, coracoids & scapulas
> anchylosed & right side of
> furculum & portion of left with anchylosed
> [?] coracoid
> ribs , two sternal .
> Wings , humeri , ulnæ, radii
> metacarpals – and one phalange
> leg . femora , tibiæ , fibulæ ,
> metatarsi , [?] toes all, but
> left, third inner, 2nd ~~outer~~, & 4th. outer

right , third inner, 3rd & 4th outer –
([?] 4th not examined

Dodo bones
to be put in our skeleton for
Mauritius Commission
Palatines , jugals, quadrates, pterygoids
Vertebræ – atlas , [?]
4th. 5th, 6th. dorsal. anchylosed –
Pelvis
Wings , ulnæ , radii & metacarpals
Toes. all, but
Left – 2,nd. 3rd & 4th outer 3rd inner
Right 2nd. 3rd & 4th outer , 3rd inner

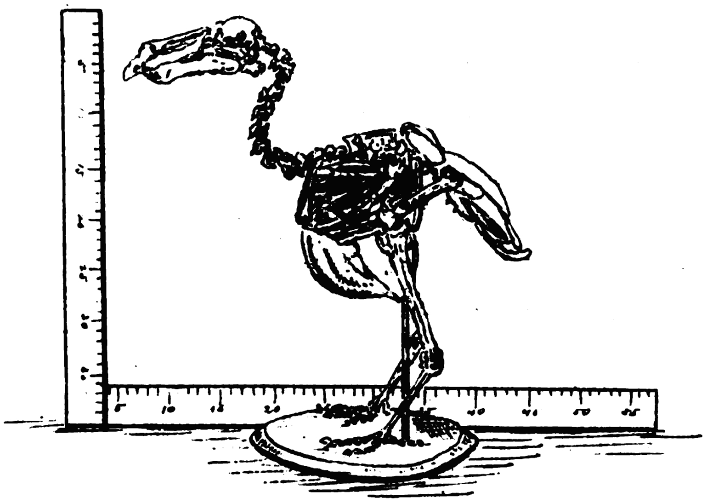
A selection of mentions of the skeleton are given below:

1905: "A whole skeleton, reconstituted by Mr. H. Milne Edwards, was offered to our Museum by Mr. Sauzier, to whom we also owe the gift of a reproduction of the dodo of Savery" (Pitot 1905, p.367).

1934: "In 1897, T. Sauzier sent from Paris to the Society a skeleton of the dodo, assembled at Cambridge, which appears today in the showcases of the Museum Desjardins. All these details were mentioned in our *Livre du Centenaire de la Société* [Book of the Centenary of the Society]" (Kœnig 1934, p.59).

1939: "In 1895, Theodore Sauzier sent from Paris, to the Royal Society of Arts and Sciences, a skeleton of Dodo, assembled at Cambridge, and which appears today in the Desjardins Museum, and 3 tableaux representing in painting the Dodo, the Dutch pigeon and red hen with beak of a woodcock" (Kœnig 1939, p.42). "There too is the skeleton of the Dodo, assembled at Cambridge, and sent by Theodore Sauzier, thanks to the bones which he had found at Mare aux Songes, in 1891, and which he had entrusted to Sir Edward Newton and to Professor Hans Gadow, as I already said, and thanks also to certain bones which lacked at the beginning, and which Mr. Thirioux found in the cavern of Pailles" (Kœnig 1939, p.47).

1980: "Thus, in 1895, Theodore Sauzier gave to the Mauritius Institute a skeleton of Dodo (*Raphus cucculatus = Didus ineptus*) assembled at Cambridge" (Tirvengadum 1980, p.iv).



Sauzier's dodo skeleton (Pitot 1905, pl.19).

The skeleton possesses pedal phalanges, carpometacarpi, alar phalanx 1 of digit II, complete furcula, the atlas and a complete pelvis. The cranium is damaged, and the first sternal rib on the right side (*vide* Newton & Gadow 1893, pl.xxxvi, fig.1) shows a triangular expansion of its caudal margin, possibly due to a healed fracture.

The preparator Aart Walen of Amsterdam evidently made a cast of this skeleton, with scientific assistance from Andrew Kitchener (pers. obs. from comparison of photographs; see above: Museo Civico di Storia Naturale, Milan).

Figured: Newton & Gadow (1893, pl.xxxvi, fig.1) [reproduced in: Van Wissen 1995, pp.76-77; Ziswiler 1996, covers, p.67; Aan de Brugh 1997, p.3]; Pitot (1905, plate Nº.19); *The Times* 23rd January 1992, p.5; Grihault (2005, p.41).

Thirioux's skeleton

The skeleton is the "only known collection of bones from a single individual, from caves on Le Pouce" (Hume *in* Cheke & Hume 2008, p.162). Almost complete skeleton, the most complete in existence. Constructed from bones of a single individual (Anon. 1984?, Cheke 2003)[141] found *in situ* by Etienne Thirioux somewhere in the vicinity of La Pouce mountain (Grihault 2006b unpublished paper; Vallée du Pouce: Wahab Owadally, pers. comm., 31st January 2008), most probably in a cave. According to Kœnig (1939), it was apparently found in a cavern in Pailles. Julian Hume (*vide* Nicholls 2006) stated that it was found at Le Pouce, and Middleton (2008, p.287) stated that Thirioux found the skeleton in the early 1900s[142] "at an unidentified ('cave'?) location on Le Pouce", giving Hume (2007, p.6) as a source. However, the latter does not mention the skeleton specifically. Hume & Walters (2012) speculated that it "was probably collected in a valley cave on the slopes of Le Pouce Mountain" (p.136) and Claessens *et al*. (2014) stated that it was collected near to Le Pouce Mountain. A cave setting would account for its preservation and completeness.[143] It was probably first exhibited in 1903 (De Charmoy 1903; Koenig 1939). It was not mentioned in the Thirioux-Newton correspondence (1899-1902), although it was referred to in a letter by D'Emmerez de Charmoy to Newton (30th December 1904), and later Thirioux to Newton (11th January 1907). Most probably, therefore, it was found in the period 1902-1904.[144] Thirioux's dodo skeleton is currently exhibited in a new gallery dedicated to the dodo at the museum, inaugurated on 14th March 2008 (Kinzonzi 2008). It was formerly kept in Case 19, along with the dodo painting donated by Sauzier, in the First Gallery on the Ground Floor (Anon. 1984?). At some stage, between February and May 2001, the posterior portion of the pelvis and distal part of the left pubis were broken off and the pygostyle removed.[145] However, these have since been reattached (Leon Claessens, pers. comm., 27th

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[141] Although Julian Hume (pers. comm., 5th January 2012) noted that the "specimen is uniform in colouration except for the pelvis and sternum, which appear to have been added from another individual". Claessens *et al*. (2014) considered the skeleton to largely derive from a single individual.

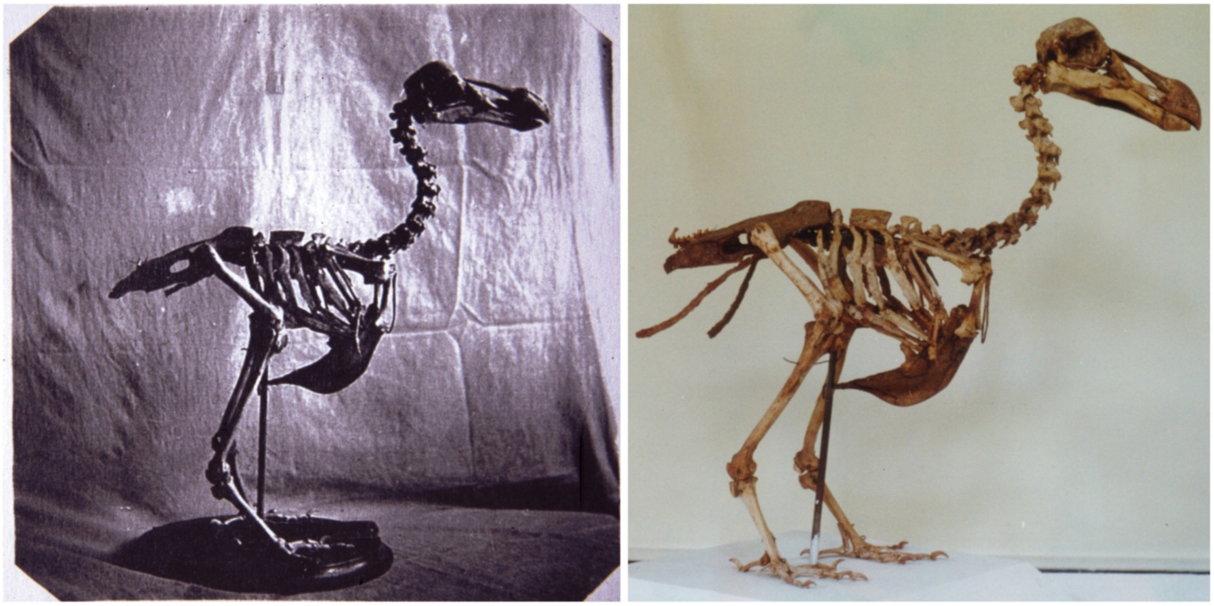
[142] According to Meijer *et al*. (2014), the Durban and Port Louis (Thirioux's) specimens were collected around 1900 in caves near Le Pouce.

[143] Newton (1904) mentioned two dodo skeletons found in a cave. According to Claessens & Allan (2012), the first of Thirioux's skeletons composed from cave material was the Port Louis skeleton and the second was the Durban skeleton. However, the remains "of at least two dodos" from the "partly collapsed cave" found by Thirioux in 1899 (Newton 1904) were not the Port Louis and Durban skeletons, as he says that the bones were spongy and deteriorated. Furthermore, although Thirioux sent photographs to Newton he did not send any of skeletons resembling either the Port Louis or Durban sepcimens, which he surely would have done had he found something as spectacular as the Port Louis specimen.

[144] It may have been mentioned by D'Emmerez de Charmoy (1903): "The most important parts found by Mr. Thirioux belong for the majority to a single individual" (p.2). Kœnig (1939): "In 1903, D. d'Emmerez de Charmoy, curator of Museum Desjardins, in a fine conference, showed to the Royal Society the bones of Dodo and Aphanapteryx, found by Mr. Thirioux in the caverns of Pailles and Mare Chicose" (pp.42-43). *Contra* Den Hengst (2003), the skeleton was not found in 1870.

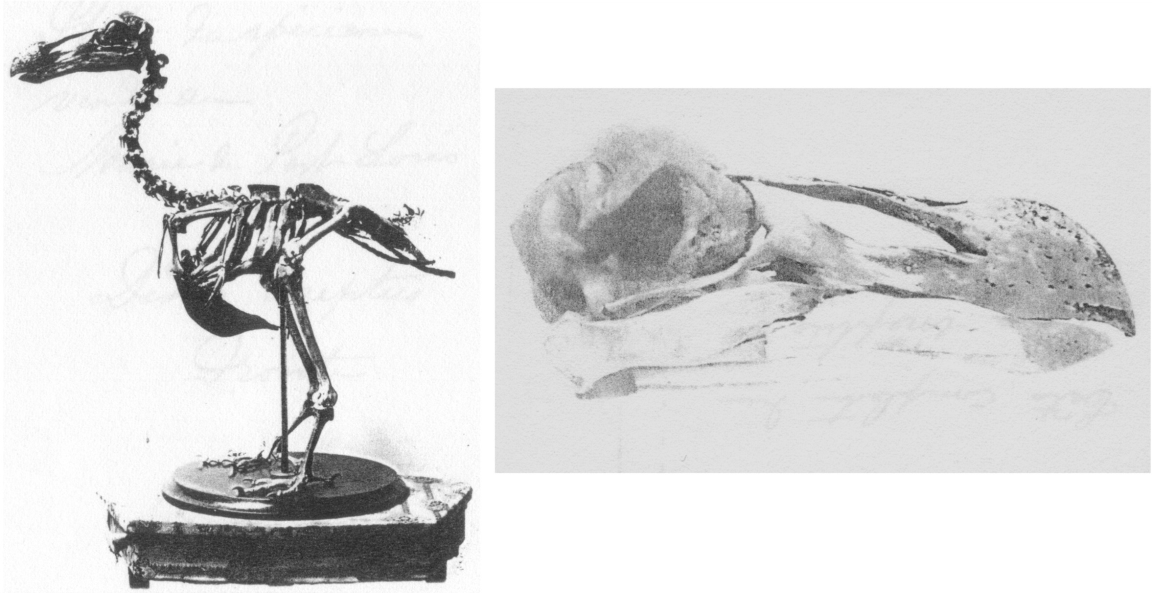
[145] From comparison of photographs in Den Hengst (2003, p.86), taken in February 2001 (Jan den Hengst, pers. comm., 14th January 2001), and images in the Channel 4 television series 'Extinct' (broadcast 2001). Filming at the

September 2012). The pubes have also been displaced (compare Pitot 1914 with later images).



Thirioux’s dodo skeleton (*left*: courtesy of Julian Hume; *right*: © Jan den Hengst, February 2001).

An early photograph of the skeleton in the archives of the Natural Science Museum & Durban Art Gallery Libraries bears the incription: “Photo: du spécimen vendu au Musée de Port Louis Didus Ineptus Dronte” [Photo: of the specimen sold to the Museum of Port Louis Didus ineptus dodo] on the reverse (see figure below). A photograph of the skull of this specimen, in the same archive, bears the annotation “tête complete de Didus ineptus” [complete head [= skull] of Didus ineptus] on the reverse.



Thirioux’s dodo skeleton, from photographs in the archives of the Natural Science Museum, Durban (© Natural Science Museum, Durban). See the figure below for the inscriptions on the reverse.

Mauritius Institute for the television documentary ‘Extinct’ took place around 5th May 2001 (Sarah Fenner, pers comm., 21st June 2012).

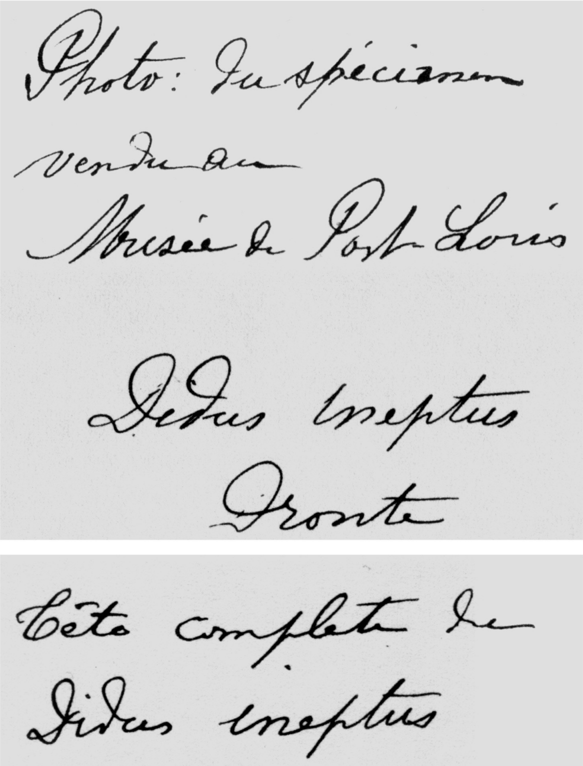
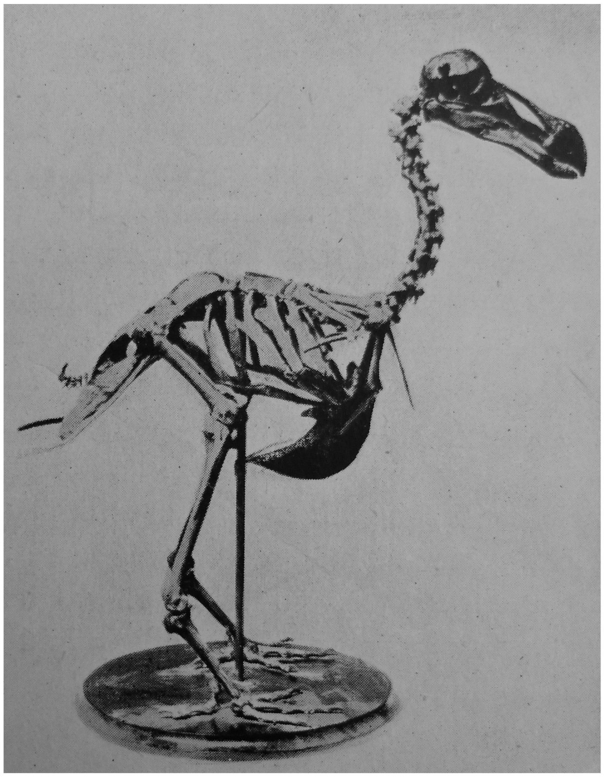


Photo: du spécimen
vendu au
Musée de Port-Louis

Didus ineptus
Fronte

Tête complète de
Didus ineptus



Thirioux's dodo skeleton: *left*: verso of photographs in the archives of the Natural Science Museum, Durban (see the above figure) (© Natural Science Museum, Durban); *right*: from Pitot (1914, p.87).

According to an article in *Le Mauricien*, "La datation des ossements du dodo réalisée en Hollande" (Anon. 2005), the skeleton was recently moved to a new display case. In August 2011 Leon Claessens and his students Jennifer Leavitt and Andrew Biedlingmaier. visited Port Louis and made a 3-D laser scan of the skeleton (Claessens & Allan 2012) using a Konica Minolta Range7 laser surface scanner providing a point cloud density of approximately 100 µm (Randall *et al.* 2014). This was used to create volumetric models of the dodo. From the scan data, Claessens and his team concluded that the skeleton "largely derives from a single individual" (Claessens *et al.* 2014, p.109).

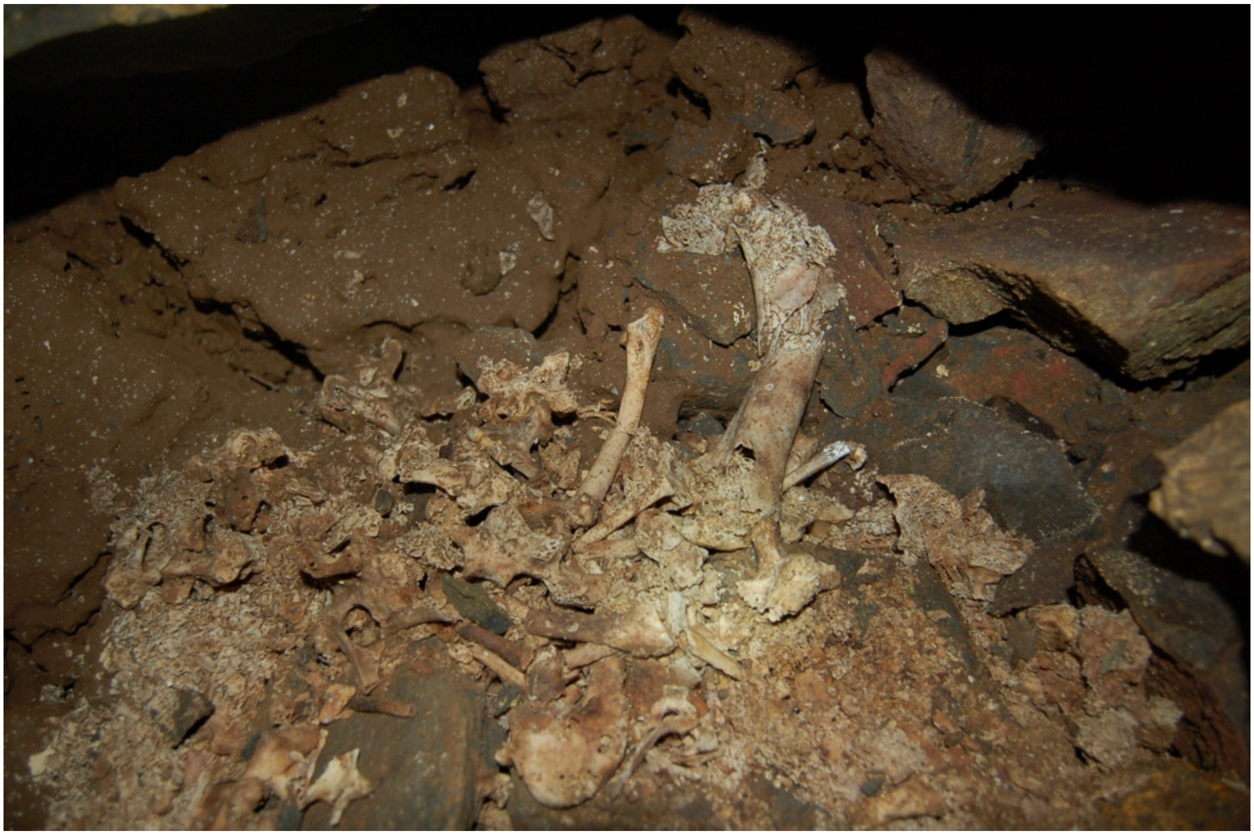
The skeleton possesses a pair of 'additional' lacrimals, patellae, a pair of intertarsal sesamoids, right radiale, left and right ulnares, left and right proximal phalanges of alar digit II, right distal phalanx of alar digit II, right alular phalanx. Using data provided by Livezey (1993), it would appear to have been a ♂ (from measurements by Julian Hume, *ex* Angst *et al.* 2011).

Figured: Pitot (1914, p.87); Staub (1993, pl.1, fig.1); Den Hengst (2003, p.86); Grihault (2005, p.38); Grihault (2007, p.101); Van 't Hof (2014, p.15 [3-D digital scan]). Film footage: "The Really Wild Show", BBC (1993); 'Extinct', Channel 4 (UK) (2001).

MP/RC/22/1, **MP/RC/22/2**, **MP/RC/24/1**, **MP/RC/38/1** [serial numbers; these bones are as yet uncatalogued] four bones from cave at Baie du Cap, described by Janoo (2005) (Deoraz Ramracheya, pers. comm., 19th November 2010).

Kanaka Bamboo Cave Dodo Find 2007

The Mauritius Museums Council also holds the Kanaka dodo specimen (Deoraz Ramracheya, pers. comm., 15th, 19th November 2010). Current location: Mauritius Institute (Middleton 2008). The specimen was "partially exposed on bare rock, with the bulk of the skeleton collapsed into a small crevice" (Hume 2013, p.203). Stratigraphy: massive bedded clay disseminated with rock fragments (<5mm), fine clays and silts in a humid basaltic cave (Hume 2013). See Parish (2013, pp.262-264, 365) and Middleton & Hume (in press: Hume 2013).for details. Figured (*in situ*): Grihault (2007, p.59); *Le Mauricien* (30th June 2007 [with two photographs: photos 11, 12 of Middleton 2008]); Ravilious (2007 [photo 13 of Middleton 2008]); Cheke & Hume (2008, p.399); Middleton (2008, photos 9, 10); Hume (2012a, fig.6); Hume (2013, fig.7); Parish (2013, fig.5.56). Photographs of the specimens also appeared on the internet (NHM 2007, Harris 2007 [reproduced in Hume 2009b, p.29]) and in Middleton (2008, photos 11, 13-15).



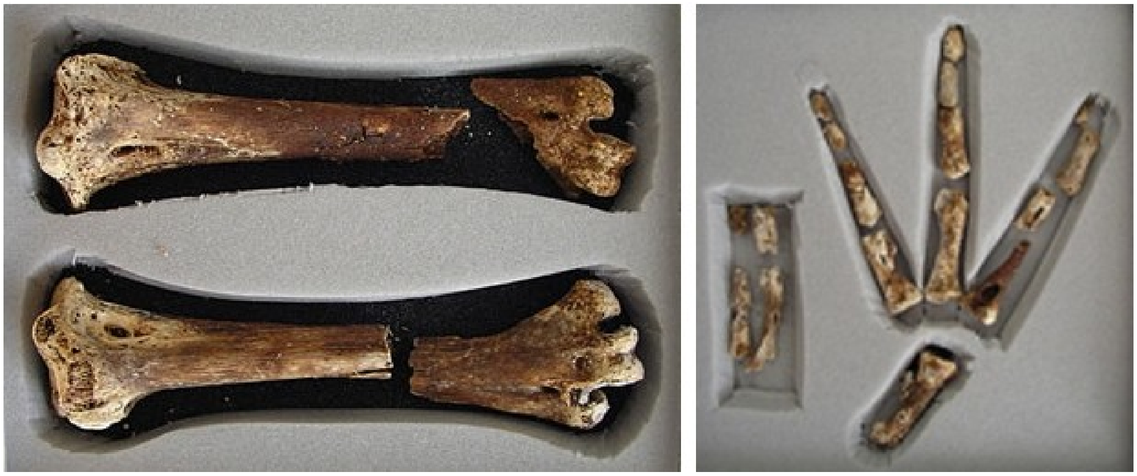
The Kanaka Cave dodo skeleton *in situ* (© Greg Middleton).

The Kanaka Cave dodo skeleton *in situ* (© Greg Middleton).

The Kanaka Cave dodo skeleton *in situ* (© Greg Middleton).

NHM 2007 Hopes for dodo DNA rise (NHM 10 August 2007): www.nhm.ac.uk/aboutus/news/2007/august/news_12220.html (with photographs by Lorna Steel).

Harris, E. 2007 Paleontologists Julian Hume and Anwar Janoo hold remains of dodo in Bois Cheri (Reuters, 29 June 2007) http://www.alertnet.org/thenews/pictures/AFR01.htm http://www.alertnet.org/thenews/pictures/AFR02.htm [pages no longer available]



The Kanaka Cave dodo skeleton: tarsometatarsi and pes (© Lorna Steel).

Pezophaps solitaria

278 bones and two sets of bones (humerus-radius-ulna-carpometacarpus) in storage at the Mauritius Museums Council (Deoraz Ramracheya, pers. comm., 15th November 2010).[146]

Three bones, damaged, probably obtained by Telfair. They were sent from the Port Louis Museum by Bouton (who identified them) to Owen in England in 1860. Owen kept them until 1877 when he gave them to Edward Newton to return to Mauritius. Newton (1896) stated that “Owen was wholly wrong in his belief (*Trans. Zool. Soc.* vii. p.519, note; *Ann. Mag. Nat. Hist.* ser.4, ix. pp.168, 241, 321) that he had returned these specimens before”(p.889). See Transcriptions.

Bones of *Pezophaps* found by Jenner in 1865: Edward Newton in Mauritius wrote to Alfred Newton “I retain here a couple of perfect legs of the two sizes for our Museum” (A. Newton 1865b, p.715; see Parish 2013, p.235).

Bones from the 1874 Transit of Venus Expedition (Lambrecht 1933)

Near-complete skeleton donated in 1900 by Albert Daruty de Grandpré (Verny) of Mon Trésor, near

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[146] UMMZ also has solitaire bones originating from the Mauritius Institute collections: 10144/7, 10147/11, 10149/4 (UMMZ 20934).

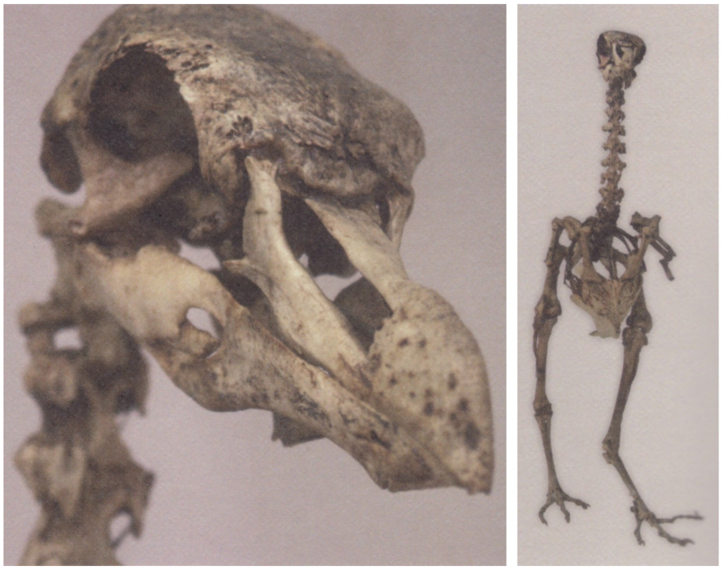
Mahébourg (Oliver 1891). Comprised of the skull, vertebrae and pectoral elements of a female and the hindlimbs of a male (Hume *et al*. 2014b). According to information on the Mauritius Museums Council website,[147] the skeleton of the solitaire was discovered in Caverne Patate in 1900. The height of the skeleton is approximately 1m (Mortensen 1933). In the autumn of 1929 Th. Mortensen saw the solitaire skeleton in the Port Louis Museum. He then wrote to Arthur McIrvine, Danish Consul in Port Louis, and asked him to send him a photograph of the skeleton, which the latter duly did (Mortensen 1933). The caudal part of the sternum has been reconstructed. The skeleton was formerly on display in a showcase (Kœnig 1939) and is currently on display in the same gallery as the dodo skeletons. A label formerly accompanying the Port Louis solitaire skeleton read (Mortensen 1933, pl.i).[148]

MUSEUM DESJARDINS

PEZOPHAPS SOLITARIA
Vulgo SOLITAIRE (Rodrigues)

Squelette appartenant à M. Albert
Daruty de Grandpré et déposé au
Museum.

Hume *et al*. (2014b) suggested that the skeleton might be a composite of Caldwell's male and female skeletons. However, this is unlikely: written evidence and a comparison of photographs of Caldwell's skeletons with the Port Louis mount suggests that they are different (see William James Caldwell's Specimens, below), although it is possible that Daruty could have acquired a skeleton from Caldwell, as the Caldwell became Daruty's deputy at the museum after he left Calcutta and returned to Mauritius (Anthony Cheke, pers. comm., 10th April 2014): Hume *et al*. (2014b) also suggested that it might have been constructed from bones collected by Jospeh Clanfergael O'Halloran (see below). Figured: Mortensen (1933, pls.i, ii); Staub (1993, pl.1, fig.2); Grihault (2005, p.114); Grihault (2007, pp.51, 52); Hume *et al*. (2014b, fig.21).



The Port Louis solitaire skeleton (© Bob Latimer).

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[147] www.mauritiusmuseums.org/article.php?pid=15 [accessed 7 July 2006]. Images of the dodo and solitaire skeletons can also be found on the same site: www.mauritiusmuseums.org/gallery.php?id=6 [accessed 7 July 2006], and at: http://ncb.intnet.mu/mac/exhi.htm [accessed 12 March 2001].

[148] Translation: "Museum Desjardins *Pezophaps solitaria*. Common Solitaire (Rodrigues). Skeleton belonging to Mr. Albert Daruty of Grandpré and deposited in the Museum."

The dodo and solitaire skeletons on display in the Dodo Gallery (© Naturalis, 19th August 2010).

Royal Society of Arts and Sciences of Mauritius

At the meeting of the Royal Society of Arts and Sciences of Mauritius held on 8th August 1881, the president, H. Pitot, read the following two letters (quoted in Anon. 1884b, pp.33-35):

> Mauritius, Colonial Secretary's Office,
> 14th June 1881.
>
> The President Royal Society of Arts and Sciences
> Sir,
>
> I am directed by the Lieutenant Governor [Frederick Napier Broome] to inform you that during his recent visit to Rodrigues His Excellancy interested himself at the request of the Royal Society of Arts and Sciences of Mauritius in obtaining bones of the extinct birds of that Island.
>
> His Excellency was so far successful that he has obtained some bones, supposed to be those of the Dodo; and he now has much pleasure in presenting them to the Society.
>
> The Lieutenant Governor is indebted to the kindness of Mr [William] Vandorous, the pilot at Rodrigues, for this contribution to the Society's collection. Mr Vandorous was, it is believed, the only inhabitant of Rodrigues in possession of such bones, and, at the Lieutenant Governor's request, he very readily consented that they should be presented to the Royal Society of Arts and Sciences of Mauritius.
>
> The Lieutenant Governor would suggest that some written recognition of the part of the Royal Society might be made to Mr Vandorous.
>
> The parcel of bones is sent herewith.
>
> I have, etc.
> Signed: H. N. D. BEYTS,
> Acting Colonial Secretary.

* * *

> Mauritius, Colonial Secretary's Office,
> 23rd July 1881,
>
> The President of the Royal Society of Arts & Sciences
> Sir,
>
> With reference to my letter No. A/716 dated the 11th instant, forwarding some bones believed to be those of the Dodo, and your letter dated the 24th ultimo, I am directed

> by the Lieutenant Goverzor to inform you that His Excellency has been pleased to authorize the Police Magistrate of Rodrigues to spend a small sum of money in making researches in the caves of that Island for bones such as are desired by the Royal Society of Arts and Sciences; and, should His Excellency receive any, they will be presented to the Society.
>
> I have, etc.,
> Signed H. N. D. BEYTS,
> Acting Colonial Secretary.

The secretary, Albert Daruty, informed the RSASM that the bones were in fact those of the solitaire. H. Pitot proposed a vote of thanks to Broome and Daruty was requested to thank Vandorous. H. N. D. Beyts was Henry Nicholas Duverger-Beyts.

See Parish (2013, p.251) for further details.

Mauritius Museums Council, Permanent Collection

Information from A. Cader Kalla (*ex* Anon. 2005 La datation des ossements du dodo réalisée en Hollande, Le Mauricien, 26/12/2005: http://www.lemauricien.com/mauricien/051226/ac.htm#3 [accessed 24 January 2006]; Amitava Chowdhury (pers. comm., 8th August 2007).

Raphus cucullatus

MP/RC/24/1 bones found during the Maroon Archaeology project. See Parish (2013, pp.255-256, 361-362) for further details.

The University of Mauritius holds no dodo material (Vijaya Teelock, pers. comm., 25th June 2007). The following catalogue numbers are those created by Anwar Janoo (Janoo 2005) and are not those used in the museum collection (Amitava Chowdhury, pers. comm., 8th August 2007). AJ-BDC = Baie du Cap, AJ-PDR = Plaine des Roches.

AJ-BDC 001 posterior cervical vertebra cf. 12th. Baie du Cap Choisy (BDC 10 (Site 38). AJ-BDC 001 was discovered in a narrow concavity in a different location from nos. AJ-BDC 002 to 005. Figured: Chowdhury (2003, fig.VII/27); Janoo (2005, fig.2A); Grihault (2005, p.83 [reproduced: Parish (2013, fig.6.36)]).[149]
AJ-BDC 002 right femur. AJ-BDC 002 was found in two parts and put back together with cyanolite adhesive (Janoo 2005). Figured: Janoo (2005, fig.2B)
AJ-BDC 003 right tibiotarsus damaged slightly proximally and distally. Figured: Janoo (2005, fig.2C, F)
AJ-BDC 004 mid cervical vertebra damaged cranially cf. 7th. Baie du Cap (BDC 1 (Site 22). Figured: Chowdhury (2003, fig.VII/29); Janoo (2005, fig.2D, G); Grihault (2005, p.83 [reproduced: Parish (2013, fig.6.36)]).
AJ-BDC 005 right tarsometatarsus lacking a portion of the shaft in the region of fossa metatarsi I (figured: Janoo 2005, fig.2E, H)
AJ-PDR 006 posterior cranial fragment including foramen magnum, occipital condyle and partial basicranium. Figured: Janoo (2005, fig.2I)
AJ-PDR 007 calvarium fragment. Figured: Janoo (2005, fig.2J)
AJ-PDR 008 posterior cervical vertebra (cf.11th). Figured: Janoo (2005, fig.2K)
AJ-PDR 009 'thoracic' vertebra fragment. Figured: Janoo (2005, fig.2L)
AJ-PDR 010 left humerus damaged proximally. Figured: Janoo (2005, fig.2M)

Rib. Baie du Cap (BDC 1 (Site 22). Figured: Chowdhury (2003, fig.VII/30)
Proximal pedal phalanx (67mm length) bearing short, narrow cut marks. Treize Cantons (Site 24). Figured: Chowdhury (2003, figs.VII/23, 24); Grihault (2005, p.83 [reproduced: Parish (2013, fig.6.36)]). See figure below.

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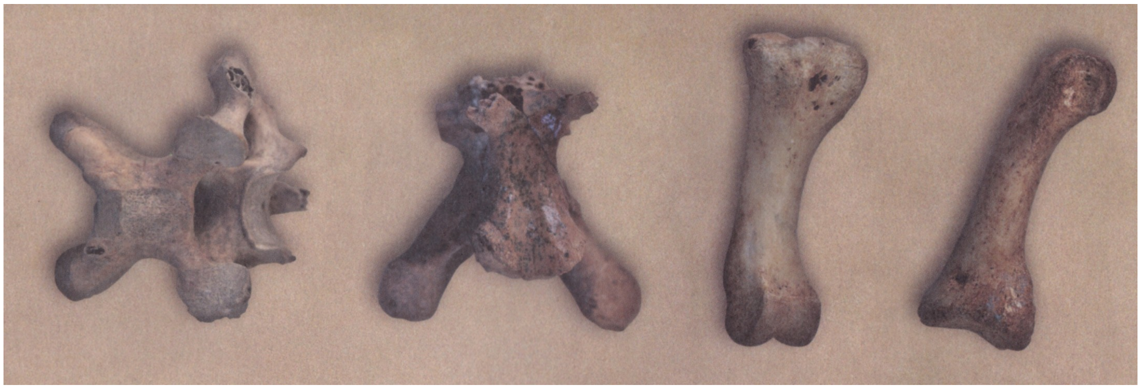
[149] Chowdhury (2003, p.xx) lists the figure caption "VII/28 Faunal remains *Raphus* cucullatus (Site 38)". However, at least some of the elements are not dodo and it is difficult to ascertain from the photograph whether any do pertain to *Raphus*.

Pedal phalanx from a site in the south of Mauritius (not from Mare aux Songes). Figured: Grihault (2005, p.83 [reproduced: Parish (2013, fig.6.36)] [photograph: Bob Latimer]). See figure below.



Two dodo cervical vertebrae (AJ-BDC 001 and AJ-BDC 004) from Baie du Cap, dodo pedal phalanx from Treize Cantons (Site 24) and dodo pedal phalanx from another site in the south of Mauritius (© Bob Latimer).

Ile aux Aigrettes

Ile aux Aigrettes, Mauritius (Mauritius Wildlife Foundation)

Raphus cucullatus

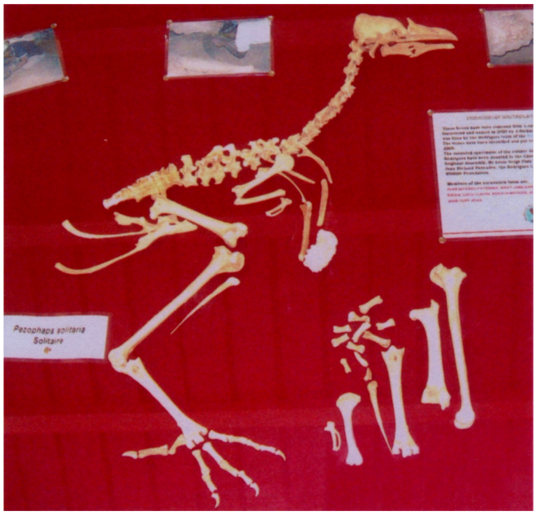
An "Exact resin model" of the BM foot, from the NHM London, on display with Nick Bibby's dodo bronze reconstruction of the dodo. Copies of the foot, made of clay, are produced in Mauritius by a local pottery (Lone Raffray, pers. comm., 8th May 2012).

Grande Montagne, Rodrigues

Grande Montagne Visitor and Information Centre, Grande Montagne, Rodrigues, Mauritius

Pezophaps solitaria

Skeleton, on display. Discovered by Jean-Richard Payendee at Caverne Poule Rouge in 2000.[150] See Parish (2013, pp.257-258) for details. Figured: Grihault (2007, p.86); Parish (2013, fig.5.54).



The Grande Montagne solitaire skeleton (© Bob Latimer).

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[150] However, Hume *et al*. (2014) stated that Caverne Poule Rouge was discovered by Richard Payendee in 2003.

Other bones found in Caverne Solitaire, also on display (Hume *et al*. 2014b).

Forestry Quarters, Mauritius Wildlife Foundation, Rodrigues

Forestry Quarters, Mauritius Wildlife Foundation, Solitude, Rodrigues, Mauritius

Pezophaps solitaria

Solitaire remains (Grihault 2007): an unmounted skeleton, currently (2008) housed in an office of the Rodrigues Forestry Services. This may eventually be exhibited in the Rodrigues Museum.

The François Leguat Giant Tortoise and Cave Reserve, Rodrigues (FLMR)

The François Leguat Giant Tortoise and Cave Reserve Museum, Rodrigues, Mauritius

See Parish (2013, pp.256-257) for further details. The following listing is based on the "Rodrigues Registration Log Book" (8/08/2005 – Owen Griffiths).

Pezophaps solitaria

R4 unknown bones (authority: Julian Hume). Found in lower part of Caverne Poule Rouge, August 2005.

R16 *Pezophaps* (authority: J. Hume). Found in lower part of Caverne Poule Rouge, August 2008.

R32 femur fragment (authority: J. Hume). Found in Caverne L'Affouche, "far end, flat out crawl". Collected by Lorna Steel, 4th November 2006. Donation.

R40 two femora, ribs, ulna (authority: J. Hume). Found in Caverne L'Affouche, "site of Meunier's previous carapace – tight passage to left of entrance". Collected by Arnaud Meunier, 4th November 2006. Staff find. Right coracoid (♂: Hume & Steel 2013).

R44 quadrate, femur, tibiotarsus (authority: J. Hume, 2006). Found in Caverne Vosmaeri, "protruding from soil a few metres in from entrance to right". Collected by Lorna Steel, 5th November 2006. Donation.

R47 tibiotarsus and synsacrum "in poor condition" (authority: J. Hume). Found in Caverne Vosmaeri, "small chamber to the right of entrance". Collected by Lorna Steel and Kamini Bhowany, 5th November 2006. Donation.

R62.1 *Pezophaps* (authority: J. Hume, 7th November 2006). Found in Caverne Poule Rouge, Grid square A2. Collected on 7th November 2006. Donation / staff find.

R70 phalanx (authority: J. Hume, 8th November 2006). Found in Caverne Poule Rouge, Grid square A2. Collected by Arnaud Meunier, Lorna Steel and Julian Hume. Donation / staff find.

R93 right coracoid (♂: Hume & Steel 2013), humerus (♂) (authority: J. Hume, 17th November 2006). Found in Caverne Poule Rouge, depth 10-20cm. Collected on 10th November 2006. Donation / staff find.

R95 phalanx (♂) (authority: J. Hume, 17th November 2006). Found in Caverne Poule Rouge, Grid square D1.

R117 left tarsometatarsus (distal) (authority: J. Hume, 21st November 2006). Found in Caverne Bambara II, west side. Collected by J. Hume 12th November 2006. Donation / staff find.

R121 right femur (♀) (authority: J. Hume). Found in Caverne Bambara II, west side. Collected by Lorna Steel on 12th November 2006. Donation.

R130 vertebra, ?synsacrum, tarsometatarsus (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, "under rocks to right of entrance"; "Arnaud's tortoie [*sic*] hole". Collected by Arnaud Meunier on 11th November 2006. Staff find.

R138 skull, rostrum, vertebrae, rib, fibula, *etc*. (authority: J. Hume, 11th November 2006). Found in Caverne Tortue, "on surface near entrance". Collected by Meunier, Steel and Hume on 11th November 2006. Staff find / donation.

R159.1, 2, 3, 4 rib, distal end of carpometacarpus, fibula, phalanx (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 1. Collected on 12th November 2006. Staff find / donation.

R165 vertebrae, synsacrum, ribs, right coracoid (♂: Hume & Steel 2013), right radius (165.1 ♂: Hume & Steel 2013. Sectioned transversely (Hume & Steel 2013). Thin section of distal radius: figured: Hume & Steel (2013, fig.6B)), left carpometacarpus (♀: Hume & Steel 2013), toe, phalanx, *etc*. (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 2. Collected on 12th

November 2006. Staff find / donation.

R175, R176, R178 basalt gastroliths, found among remains of solitaire and tortoise – could belong to solitaire or tortoise. On display.

R180 vertebrae, right coracoid (♂: Hume & Steel 2013), humerus, left carpometacarpus (♂: Hume & Steel 2013), femur, tibiotarsus, *etc*. (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 3. Collected November 2006. Staff find / donation.

R181.1, 2 two rostra (♂ and ♀) (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 3. Collected November 2006. Staff find / donation.

R189 mandible, femur, tibiotarsus (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 3. Collected November 2006. Staff find / donation.

R202 coracoid fragments (♂), tibiotarsus (♂), tarsometatarsus (♂), tarsometatarsus (♀), phalanges (♂ and ♀) (authority: J. Hume, 22nd November 2006). Found in Caverne Tortue, level 6. Collected on 14th November 2006. Staff find / donation.

R218 leg bone (authority: J. Hume, 22nd November 2006). Found in "sand trench excavation to recover sperm whale, [Les] Gravier[s]".[151] Collected by Arnaud Meunier in November 2006. Staff find / donation. "1 Solitaire leg long bone was found at [Les] Gravier[s] buried at a depth of about 1 m in the sand behind the beach" (Owen Griffiths, pers. comm., 22nd January 2010).

R221.1, 2, 3, 4 pedal phalanges authority: J. Hume, November 2006). Found in Caverne Tortue, level 2 Collected on 12th November 2006. Staff find / donation.

R222 pedal phalanx (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 3. Collected November 2006. Staff find / donation.

R223.1, 2, 3 vertebrae (authority: J. Hume, 21st November 2006). Found in Caverne Tortue, level 3. Collected November 2006. Staff find / donation.

R224 *Pezophaps* (authority: J. Hume). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.1 cranium (♀) (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.2 skull roof (♂) (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.3 left mandibular ramus (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.4 right mandibular ramus (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.5 left mandibular ramus (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.6 right mandibular ramus (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.7 left side of sternum (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.8 mandible fragment (authority: J. Hume, 10th July 2007). Found in Caverne Poule Rouge. Finder and collection date unknown.

R224.19 left carpometacarpus (♀: Hume & Steel 2013).

R263 left dentary (authority: J. Hume, November 2008). Found in Caverne Dora, square B, depth 10 to 20cm. Collected by Lorna Steel, Julian Hume and Greg Middleton.

R272 ulna (pathological) (authority: J. Hume, November 2008). Found in Caverne Bambara. Collected by SESCR (Societe d'etudes Scientifiques des Cavernes de La Réunion), 1999. Donation.

R304 *Pezophaps* (authority: J. Hume, November 2008). Found in Caverne Mus Zon. Collected on 13th November 2008. Staff find / donation.

R307 vertebra (authority: L. Steel, November 2008). Found in Caverne Solitaire, "squeeze leading down". Collected by Lorna Steel on 22nd November 2008. Donation.[152]

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[151] A sperm whale (*Physeter macrocephalus*) was washed up near Mourouk, Rodrigues, in February 2006. It was buried on 13th February 2006 in sandy soil near the coast. The François Leguat Giant Tortoise and Cave Reserve team helped with the removal and burial.It is planned to excavate the skeleton and place it on display.

[152] "Caverne Solitaire is slowly collapsing – the squeeze leading down is no longer passable" (Lorna Steel, pers. comm., 20th May 2011).

R308 tibiotarsus (♂) (authority: L. Steel, November 2008). Found in new cave near Caverne Patate car park. Collected by Lorna Steel on 21st November 2008. Donation.

R311 tibiotarsi (♂ and ♀) (authority: J. Hume, November 2008). Found in "Electric pole cave [Electricity Pole Cave (Hume *et al*. 2014b)] upper level". Collected by Lorna Steel *et al*. on 28th November 2008. Donation. Only one tibiotarsus found (Lorna Steel, pers. comm., 20th May 2011).

R313 tarsometatarsus (authority: J. Hume, November 2008). Found in "Electric pole cave upper level". Collected by Lorna Steel *et al*. on 28th November 2008. Donation. Not juvenile (Lorna Steel, pers. comm., 20th May 2011).

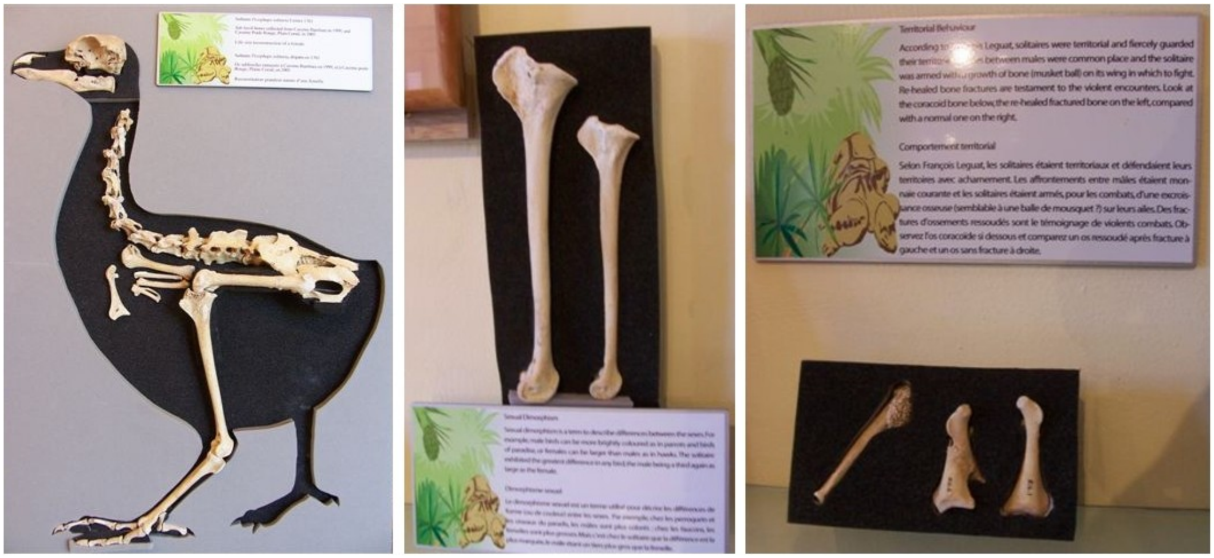
R316.1, 2, 3 femur, tibiotarsus, tarsometatarsus (authority: J. Hume, November 2008). Found in Caverne Monseigneur. Collected by JH [Julian Hume], GM [Greg Middleton], SB [Steven Bourne] and LS [Lorna Steel] on 13th November 2008. Donation.

R317 femur (♀). Found in Caverne Bambara, Galerie Tartania. Collected by Christian Guillermet on 11th March 1999. Donation.

R225 identity unknown (authority: J. Hume, March 2007). Found in Caverne Dora, François Leguat Giant Tortoise and Cave Reserve, "small side passage of lower entrance". Collected by Owen Griffiths.

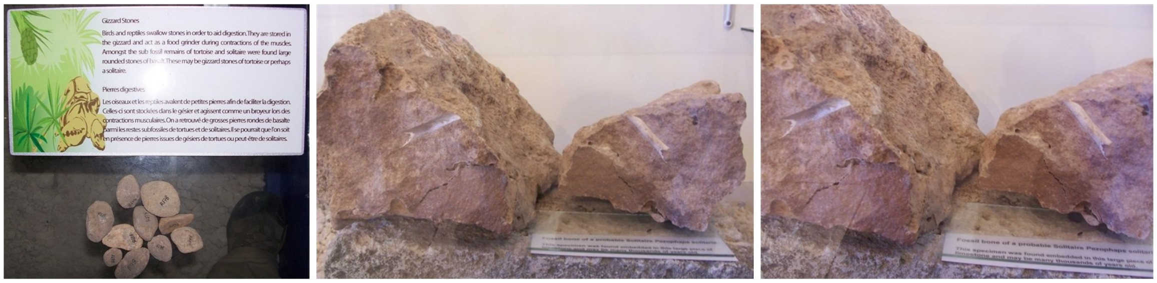
On display: left coracoid; right coracoid (with healed break); radius (♂, with exostosis), right tibiotarsus (♀); right tibiotarsus (♂); assembled skeleton mount (bones mounted within black body outline)*; ten possible *Pezophaps* gastroliths (R175, 176, 178); possible *Pezophaps* long bone fragment (cf. tibiotarsus?) embedded in calcarenite, "may be many thousands of years old". See figure below. Mounted skeleton: figured: Rodríguez-Pontes (2014, figs.3, 4).

* Premaxilla, cranium, left mandibular ramus, eight cervical vertebrae, notarium, eighteenth vertebra, left coracoid, left humerus, radius, ulna, carpometacarpus, fragmentary pelvis, left femur, right tibiotarsus, right tarsometatarsus, first metatarsal, pedal phalanges (I: one, II: three plus ungual, III: three plus ungual). See figure below.


Territorial Behaviour
According to [illegible] Leguat, solitaires were territorial and fiercely guarded their territo[illegible]es between males were common place and the solitaire was armed with a growth of bone (musket ball) on its wing in which to fight. Re-healed bone fractures are testament to the violent encounters. Look at the coracoid bone below, the re-healed fractured bone on the left, compared with a normal one on the right.
Comportement territorial
Selon François Leguat, les solitaires étaient territoriaux et défendaient leurs territoires avec acharnement. Les affrontements entre mâles étaient monnaie courante et les solitaires étaient armés, pour les combats, d'une excroissance osseuse (semblable à une balle de mousquet ?) sur leurs ailes. Des fractures d'ossements ressoudés sont le témoignage de violents combats. Observez l'os coracoïde si dessous et comparez un os ressoudé après fracture à gauche et un os sans fracture à droite.

François Leguat Giant Tortoise and Cave Reserve Museum solitaire specimens on display: skeleton mount, right tibiotarsi (♂ and ♀), right and left coracoids (right one with pathology) and radius (© Arnaud Meunier, François Leguat Giant Tortoise and Cave Reserve).

The museum contains "perhaps 100 plus bones etc" (Owen Griffiths, pers. comm., 20th December 2007). Solitaire remains were collected under the supervision of Julian Hume at the François Leguat Giant Tortoise and Cave Reserve site and are housed in its museum (Owen Griffiths, pers. comm., 26th June 2007).



Gizzard Stones

Birds and reptiles swallow stones in order to aid digestion. They are stored in the gizzard and act as a food grinder during contractions of the muscles. Amongst the sub fossil remains of tortoise and solitaire were found large rounded stones of basalt. These may be gizzard stones of tortoise or perhaps a solitaire.

Pierres digestives

Les oiseaux et les reptiles avalent de petites pierres afin de faciliter la digestion. Celles-ci sont stockées dans le gésier et agissent comme un broyeur lors des contractions musculaires. On a retrouvé de grosses pierres rondes de basalte parmi les restes subfossiles de tortues et de solitaires. Il se pourrait que l'on soit en présence de pierres issues de gésiers de tortues ou peut-être de solitaires.

François Leguat Giant Tortoise and Cave Reserve Museum solitaire specimens on display: *left*: gastroliths (R175, R176, R178), *middle* and *right*: possible *Pezophaps* long bone fragment (cf. tibiotarsus?) embedded in calcarenite (© Arnaud Meunier, François Leguat Giant Tortoise and Cave Reserve).

On 5th November 2006, Owen Griffiths found a solitaire left tibiotarsus (see figure below) in Caverne Vosmaeri at the François Leguat Giant Tortoise and Cave Reserve site, with Hume and Steel (Owen Griffiths, pers. comm., 23rd August 2009; 8th September 2009). Figured: Parish (2013, fig.5.53).

Owen Griffiths with a solitaire left tibiotarsus he found on 5th November 2006 in Caverne Vosmaeri (© Arturo Valledor de Lozoya).

An associated female solitaire skeleton was discovered by Lorna Steel in Caverne L'Affouche in May 2013, along with bones of *Nesoenas rodericana* and *Cylindraspis peltastes* (Anon. 2013, Hume *et al*. 2014b). These specimens are housed in the The François Leguat Giant Tortoise and Cave Reserve Museum. Steel (2013) reported the following:

> We have been excavating in one large cave for about a week, and got down to about 1 metre depth. We are sieving the sediment and picking out all of the bones, big and small. Julian is very pleased that we have found some bones of the solitaire (probably all from the same female), rail, owl, night heron, parakeet, petrel, starling and other passerines. As usual, there is lots of small reptile, including the world's largest ever gecko, which was half a metre long, not including the tail.

> At some point I went to explore the other side of the cave. Having stopped to pick up a solitaire wing bone (as you do), I looked up and saw the carapace (upper shell) of a tortoise wedged under rocks and partly buried in sediment.

The caves are now mostly over-collected and noticeably lack large bones. “Sieving recovers small elements of passerines and lizards only” (Lorna Steel, pers. comm., 20th May 2011). “The process of cave formation and collapse is more rapid in the tropics; the life cycle of caves is relatively short [in Rodrigues]” (*ibid*.).

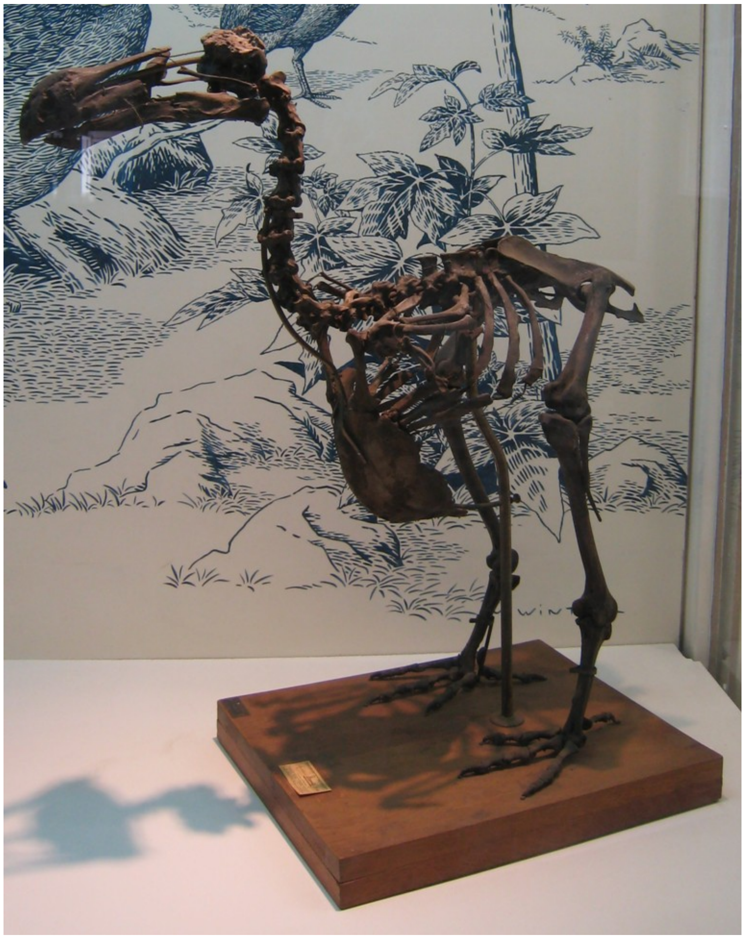
Muséum d’Histoire Naturelle, Saint-Denis, Réunion

Muséum d’Histoire Naturelle, Rue Poivre, 97400 Saint-Denis, Ile de la Réunion

The natural history museum first opened in Saint-Denis, Réunion, in 1855 (Cheke & Hume 2008).

Raphus cucullatus

Fairly complete skeleton, composed of bones from Mare aux Songes (Pierre Brial, pers. comm., 9th August 2011). The skeleton is currently exhibited in display case No.5 in the Lacroix room (Salle Lacroix), especially reserved for the recent and current fauna of Réunion and the Mascarenes.[153]



The Muséum d’Histoire Naturelle, Saint-Denis, dodo skeleton (© Matthieu Sontag, 7th October 2011).

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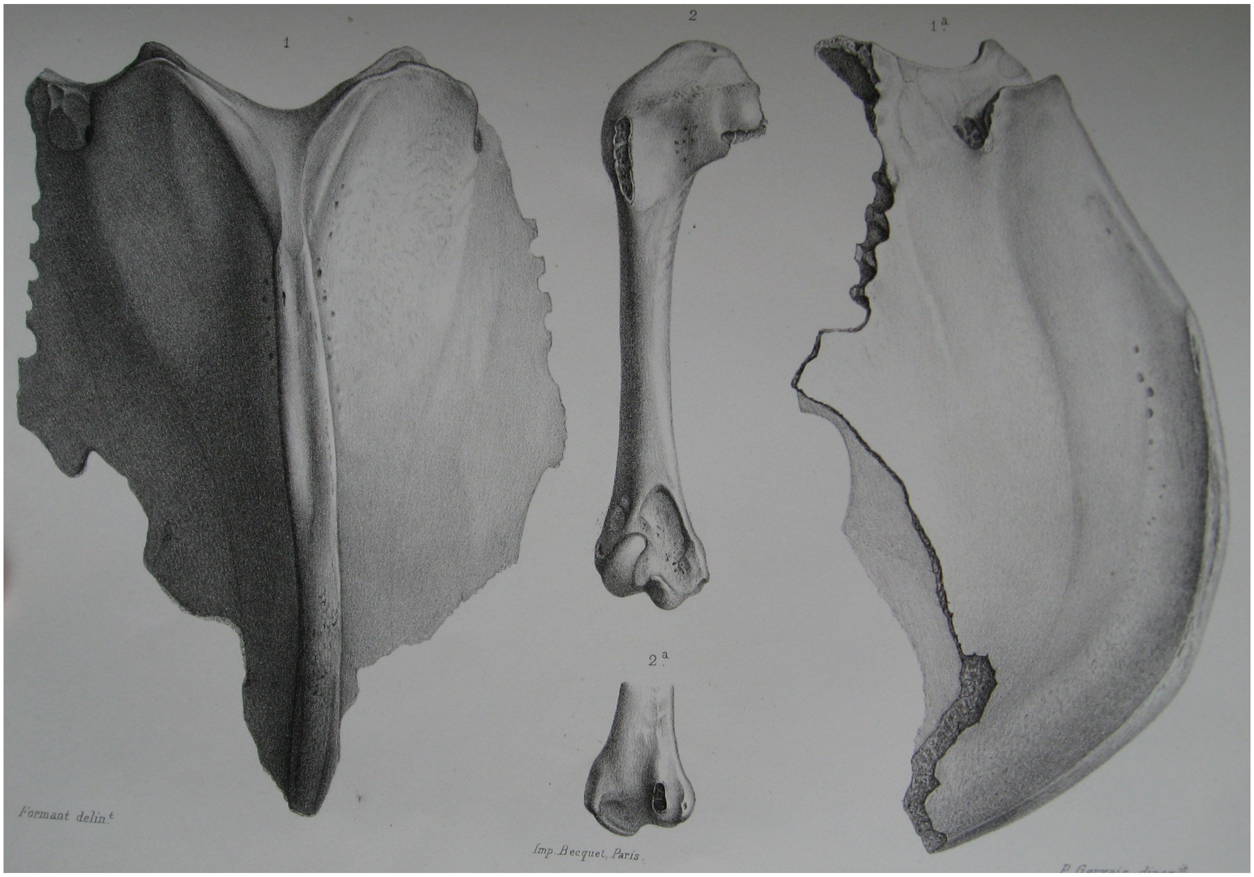
[153] Une Exposition du Museum d’Histoire Naturelle: www.cg974.fr/mhns3v05.html [accessed 10 November 2004].

Specimens from Mare aux Songes listed by Gervais & Coquerel (1866) as having been donated to the Musée de l'île de la Réunion, Saint-Denis, by George Clark either in late 1865 or early 1866 (Hume *et al*. 2009): "a considerable portion of lower mandible", two cervical vertebrae (figured: Gervais 1867-1869, pl.xxxiv, figs.1, 1^{a}, pl.xxxv, figs.1, 1^{a}), almost complete sternum (damaged caudally; figured: Gervais 1867-1869, pl.xxxiii, figs.1, 1^{a}), scapula (figured: Gervais 1867-1869, pl.xxxiv, figs.3, 3^{a}), almost complete pelvis (figured: Gervais 1867-1869, pl.xxxiv, fig.2, pl.xxxv, figs.2, 2^{a}), humerus (10.5cm long;[154] figured: Gervais 1867-1869, pl.xxxiii, figs.2, 2^{a}), two femora (figured: Gervais 1867-1869, pl.xxxvi, figs.1, 1^{a}, 1^{b}), two tibiotarsi (figured: Gervais 1867-1869, pl.xxxvi, figs.2, 2^{a}, 2^{b}), fibula (figured: Gervais 1867-1869, pl.xxxv, figs.3, 3^{a}), two tarsometatarsi (figured: Gervais 1867-1869, pl.xxxvi, figs.3, 3^{a}, 4).[155] Hume *et al*. (2009) noted that there was no evidence to indicate that Clark received payment for these. The bones were exhibited by Charles Coquerel before the *Académie des Sciences*, Paris, at the meeting of 23rd April 1866 (Gervais & Coquerel 1866; Radau 1866). Coquerel (1866) figured the sternum, humerus, femur, tibiotarsus and tarsometatarsus ("Imp. A. Roussin" "Ile de la Reunion"), albeit in mirror-image to the illustrations in Gervais & Coquerel (1866). These bones may or may not be the same as those present in the skeleton listed above.



Sternum (Gervais 1867-1869, pl.xxxiii, figs.1, 1^{a}) and humerus (*ibid*., figs.2, 2^{a}). ("Formant delin.^{t}" "Imp. Becquet, Paris" "P. Gervais direx.^{it}").

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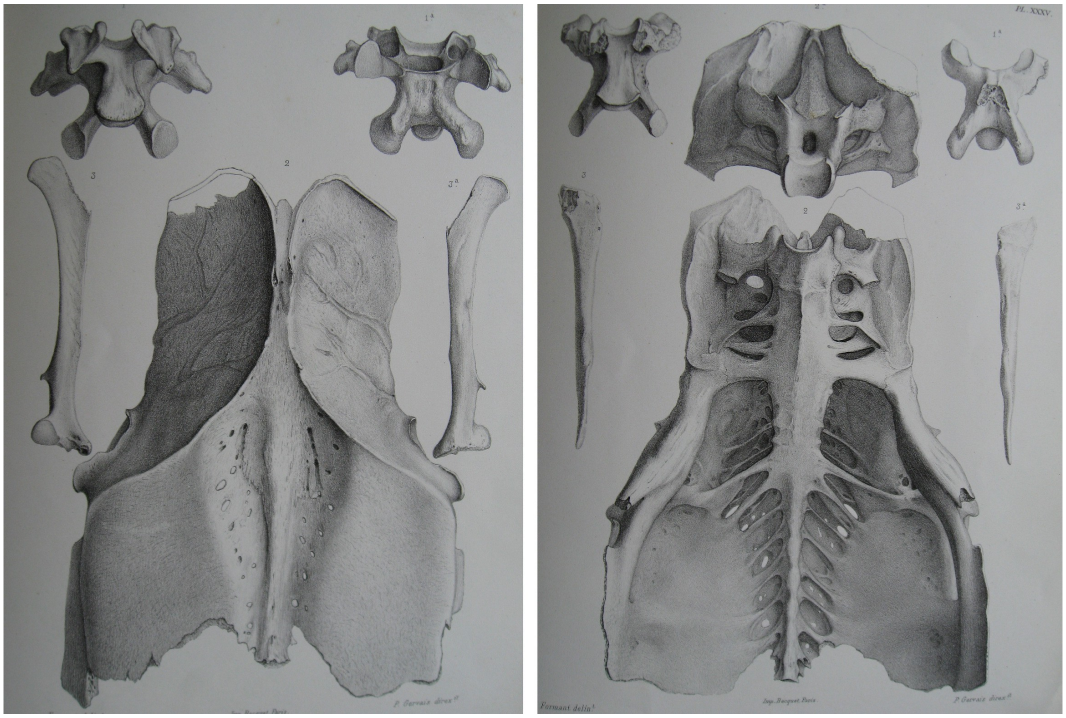
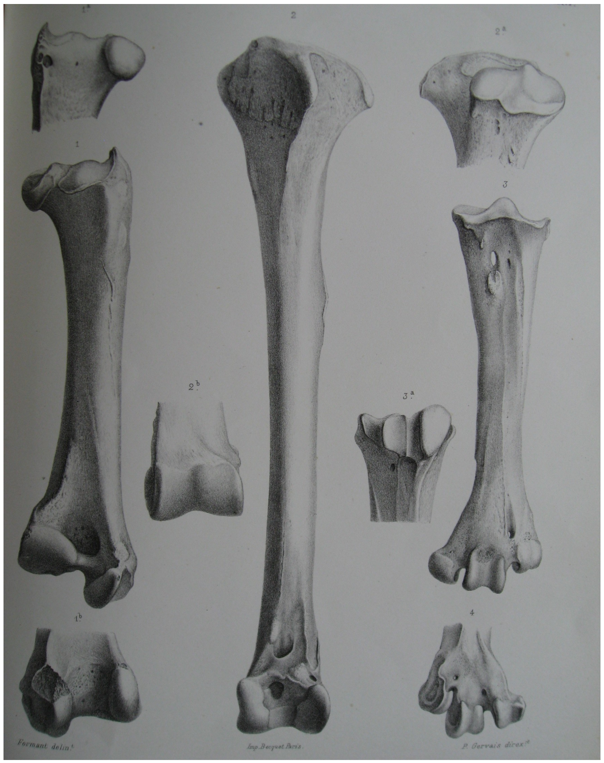
[154] "0^{m}, 105" (Gervais & Coquerel 1866, p.926). Gervais (1867-1869, p.188) gives "0^{m},015", *i.e.* either 15cm or 1.5cm, neither of which are correct for a humerus length.

[155] In addition, Gervais (1867-1869) listed a coracoid, but omitted the cervical vertebrae and only listed one femur.



Left: cervical vertebra (Gervais 1867-1869, pl.xxxiv, figs.1, 1^a), pelvis (*ibid*., fig.2) and scapula (*ibid*. figs.3, 3^a). *Right*: cervical vertebra (*ibid*., figs.1, 1^a), pelvis (*ibid*., fig.2) and fibula (*ibid*., figs. 3, 3^a). ("Formant delin.^{t}" "Imp. Becquet, Paris" "P. Gervais direx.^{it}").



Femur (Gervais 1867-1869, pl.xxxvi, figs.1, 1^a, 1^b), tibiotarsus (*ibid*., figs.2, 2^a) and tarsometatarsi *(ibid*., figs.3, 3^a, 4). ("Formant delin.^{t}" "Imp. Becquet, Paris" "P. Gervais direx.^{it}").

Gervais (1867-1869) further noted that he had a new specimen of the sternum “that I acquired recently for the collection of the Museum, and which also comes from the excavations made by Mr. Clarck [*sic*], is a little more complete in its lower part than that of my plate XXXII” (p.189).

Coquerel (1863) noted that: “The Museum of S^{t}-Denis lately received from [Michel Edmond de] Sélys Longchamps, a head and a leg of the Dodo in plaster, moulded from nature” (p.9).

Pezophaps solitaria

Partially restored skeleton of the solitaire (Janoo 1997)

Quebec Museum – see World Museum, Liverpool.

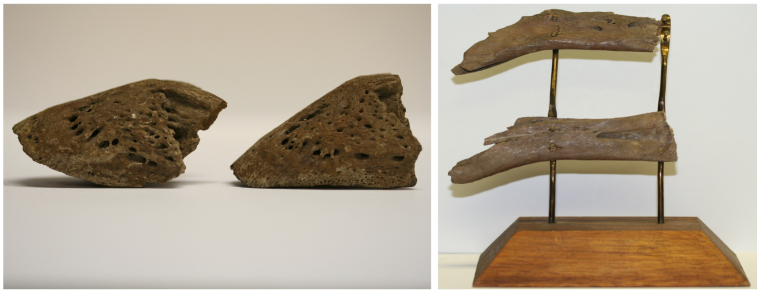
Redpath Museum, Montréal

McGill Redpath Museum, 859 Sherbrooke St. W., Montréal, Québec H3A 2K6, Canada. Ornithological Collection.

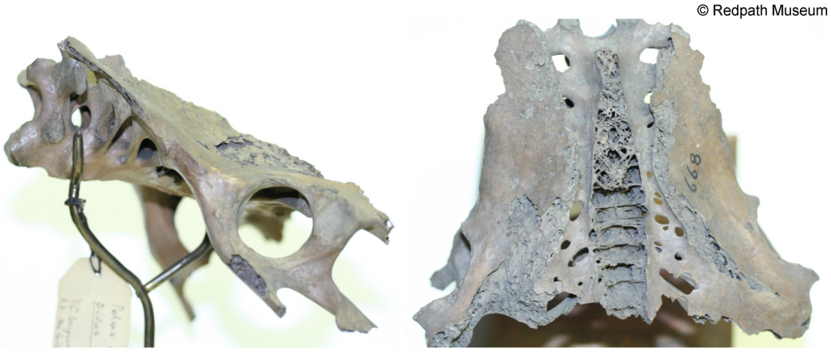
Raphus cucullatus

Actual bones (**6692**):

two mandibular symphyses
mid portion of left mandibular ramus (1)
mid portion of right mandibular ramus (1)
partial synscacrum (2)
vertebral rib fragment
proximal and acetabular portion of pelvis (668) (3)
left tibiotarsus (lacks proximal end) (2)
right tibiotarsus (lacks proximal end) (2)
left tarsometatarsus (lacks proximal extremity) (2)
right tarsometatarsus (2)

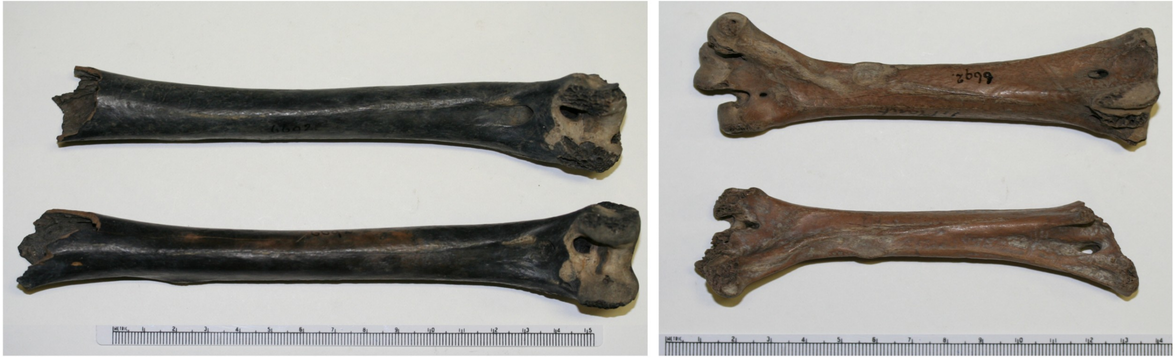


6692: two mandibular symphyses and two mid portions of ramus (© Redpath Museum, McGill University).



© Redpath Museum

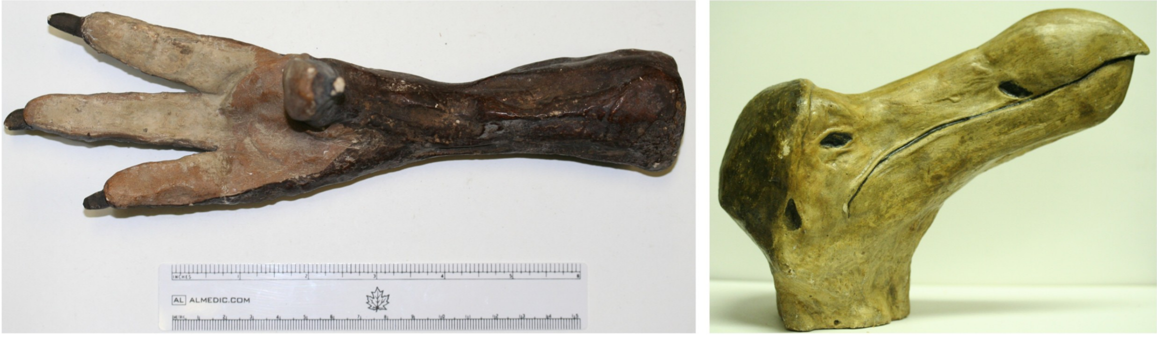
6692: proximal and acetabular portion of pelvis (668) (© Redpath Museum, McGill University).



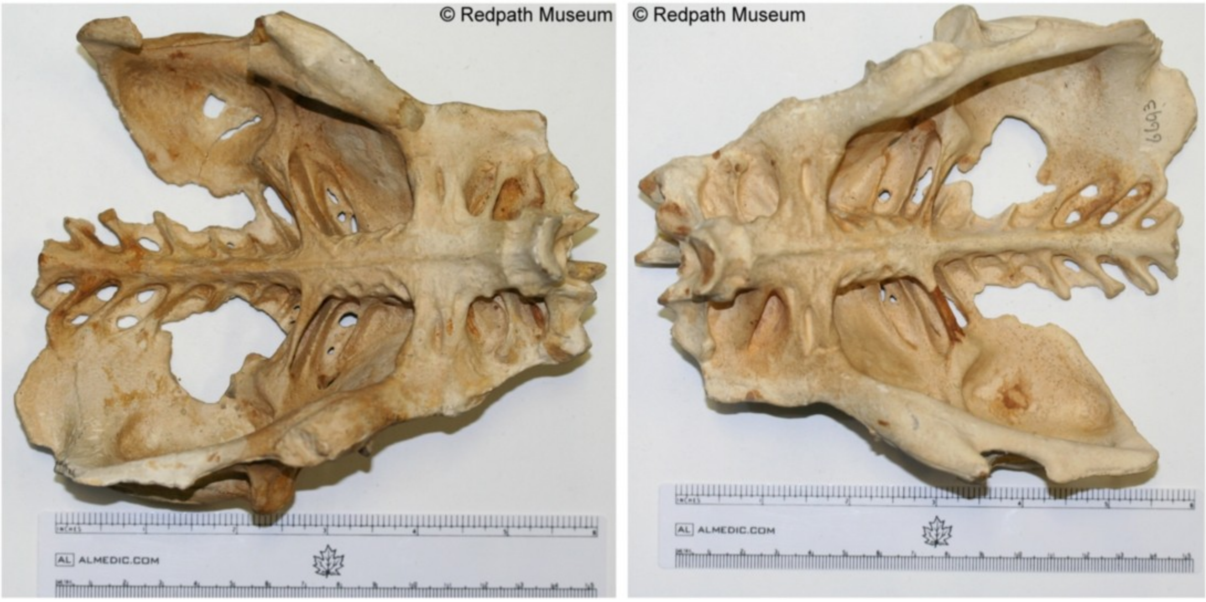
6692: tibiotarsi and tarsometatarsi (© Redpath Museum, McGill University).

Plaster cast specimens (**6693**):

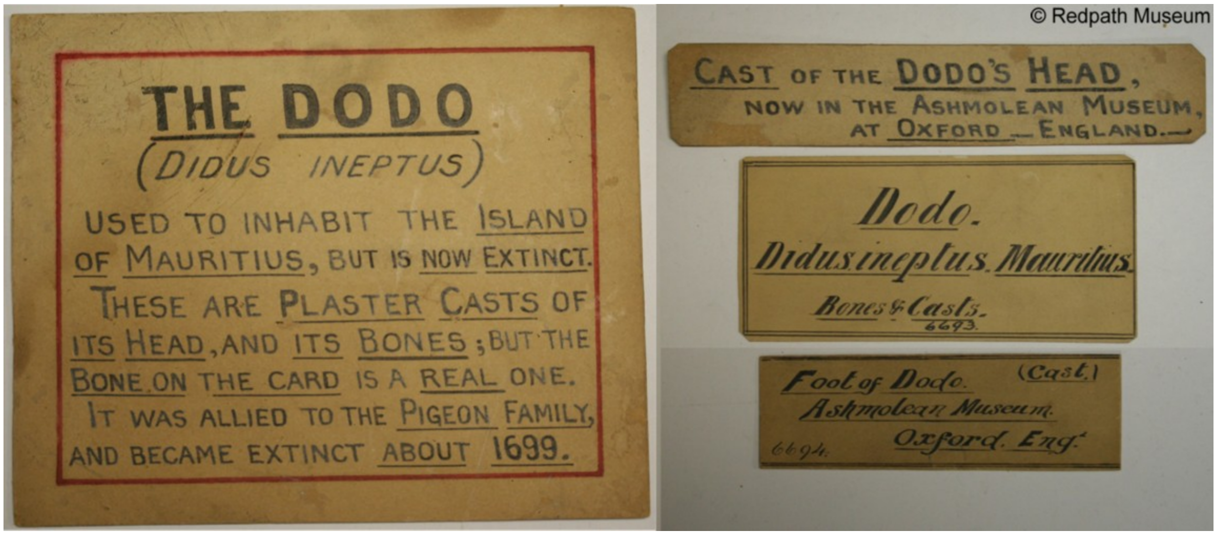
BM foot (**6694**) (not “Ashmolean Museum” as stated on the accompanying label)
Tradescant head. At the meeting of the Natural History Society of Montreal held on 26th February 1866, a “Cast of the head of the dodo, from the specimen in the Oxford University Museum” was mentioned as being donated to the museum of the Society by Prof. [George] Rolleston, Oxford University (Watt *et al*. 1868, p.27). This “cast of the skull of the Dodo” was exhibited at the meeting (*ibid*., p.30).
left mandibular ramus and symphysis
two proximal portions of right mandibular ramus
one proximal portion of left mandibular ramus
nine mid cervical vertebrae
eleven vertebral rib fragments
one left scapulocoracoid
left scapulocoracoid (most of scapula broken off)
one right scapulocoracoid
two sterna
two left humeri
one right humerus
two pelves
two left femora
two right femora
two left tibiotarsi
two right tibiotarsi
two fibulae
one left tarsometatarsus
three right tarsometatarsi



Casts of the BM foot (6694) and Tradescant head (6693) (© Redpath Museum, McGill University).



6693: cast of a partial pelvis (© Redpath Museum, McGill University).



THE DODO
(DIDUS INEPTUS)
USED TO INHABIT THE ISLAND OF MAURITIUS, BUT IS NOW EXTINCT.
THESE ARE PLASTER CASTS OF ITS HEAD, AND ITS BONES; BUT THE BONE ON THE CARD IS A REAL ONE.
IT WAS ALLIED TO THE PIGEON FAMILY, AND BECAME EXTINCT ABOUT 1699.

© Redpath Museum

CAST OF THE DODO'S HEAD,
NOW IN THE ASHMOLEAN MUSEUM,
AT OXFORD — ENGLAND.—

Dodo.
Didus ineptus. Mauritius.
Bones & Casts.
6693.

Foot of Dodo. (Cast.)
Ashmolean Museum.
6694. Oxford. Engd

6692-6694: labels accompanying the Redpath Museum specimens (© Redpath Museum, McGill University).

Notes:
(1) Mounted together
(2) Donated by: Francis Plant. Date: 1881-1894. Location: Mauritius
(3) Mounted. Donated by: V. C. Wynne Edwards[156] & the Department of Anatomy, McGill University. Date: 10th March 1933. Location: Unknown.

It is not known with certainty when or under what circumstances the material was acquired by the Redpath Museum. Based on the handwriting on the labels, the specimens were probably procured between 1881 and 1894 and it may be that John William Dawson, founder of the museum, acquired the specimens through connections with the BM(NH) (via Richard Owen) or from the OUM. Unfortunately, no associated correspondence has been found (Ingrid Birker, pers. comm., 17th February 2008).

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[156] Vero Copner Wynne-Edwards (1906-1997). English biologist. He was Assistant Professor at McGill University. He attended Rugby School, New College, Oxford (1924-1927) and held a position at the Zoology Department of Bristol University.

At least some of the casts originated from Liverpool, as evidenced by Anon. (1867c) in the exchanges of the Derby Museum (see World Museum, Liverpool, above).

Royal Ontario Museum, Toronto

Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada. Department of Natural History, Section of Palaeobiology.

Raphus cucullatus

ROM 1214 almost complete skeleton. Bones dark brown. Originally purchased by Harvard University,[157] and subsequently obtained by the ROM in an exchange for an *Anchiceratops* skull. The skeleton was offered to the ROM through James Henry Fleming[158] in 1938 and later that year Madeleine Fritz, assistant director of the Royal Ontario Museum of Palaeontology, organised the exchange (Seymour 2003). It was the first dodo skeleton displayed in Canada. The curator, Loris Shano Russell, had ROM technicians re-mount the skeleton, based on Roelandt Savery's paintings, and cast missing bones in plastic or wood; this is the current arrangement (Seymour 2003). It was formerly displayed in a second-floor case in the Samuel Hall, Currelly Gallery of the ROM (Seymour 2003), but is currently in an exhibit in the Schad Gallery of Bio-Diversity, which opened in May 2009. The skeleton was moulded and commercially cast copies are available via Valley Anatomical Preparations, California (see below; Kevin Seymour, pers. comm., 26th June 2008). Original elements include a partial beak, partial cranium and cervical vertebrae. Figured: Seymour (2003, pp.38-39).

Russell (*c.*1938) stated that the skeleton was contained in a glass case, which it had all to itself, in the north wing of the Museum of Palaeontology. The missing parts had been reconstructed by modelling. He remarked:

> two incomplete skeletons eventually came to Harvard College at Cambridge, Massachusetts, in part through the influence of the famous naturalist Louis Agassiz. About two years ago the Royal Ontario Museum was offered one of these skeletons, through Mr. James H. Fleming, well known local ornithologist. An exchange was arranged by Dr. Madeleine A. Fritz, whereby Harvard University received the skull of a dinosaur from Alberta, and the Royal Ontario Museum received a dodo. This was fair enough, since we already had on exhibition another dinosaur skull of the same sort, and Harvard has another dodo.
>
> The specimen came to Toronto literally in the arms of Mr. James [Lee] Peters, Curator of Ornithology at Harvard. Mr. Peters had some minor difficulties explaining things to the customs officers [...] Finally [...] the dodo was released from custody. As soon as it was unpacked at the Museum it was realized that the skeleton was still mounted after the fashion of the [eighteen] seventies. The pose was unnatural, and little attempt had been made to restore the missing bones. Much time had to be spent modelling the absent parts in clay and casting them in paster or plastic wood. The completed skeleton was mounted in a pose based on that of Roelandt Savery's paintings. Accompanied by a copy of this painting [Savery-Berlin], and a descriptive label, the bones of this highly extinct bird are now on exhibition along side of a moa skeleton (pp.6-7).

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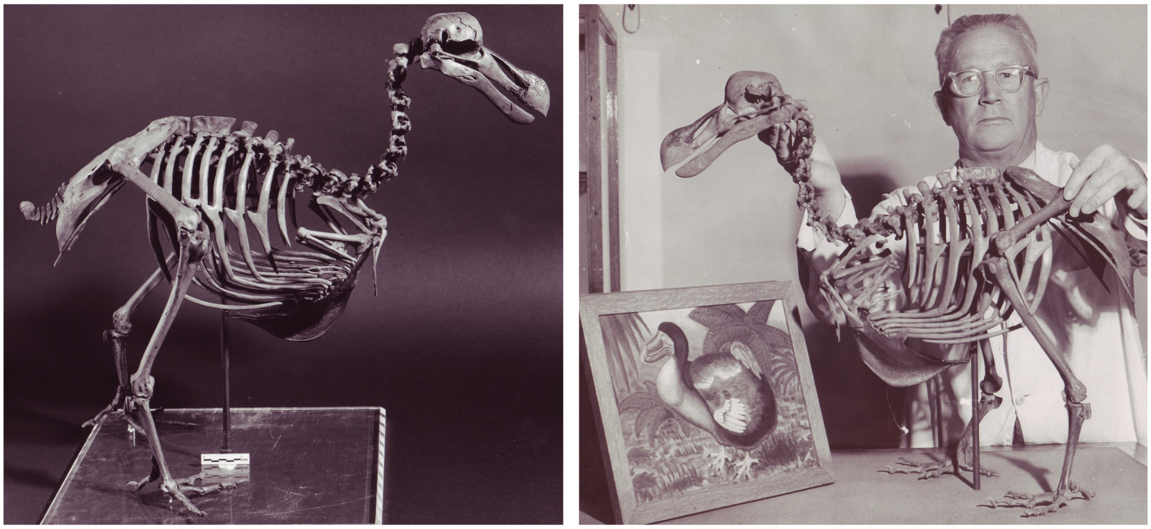
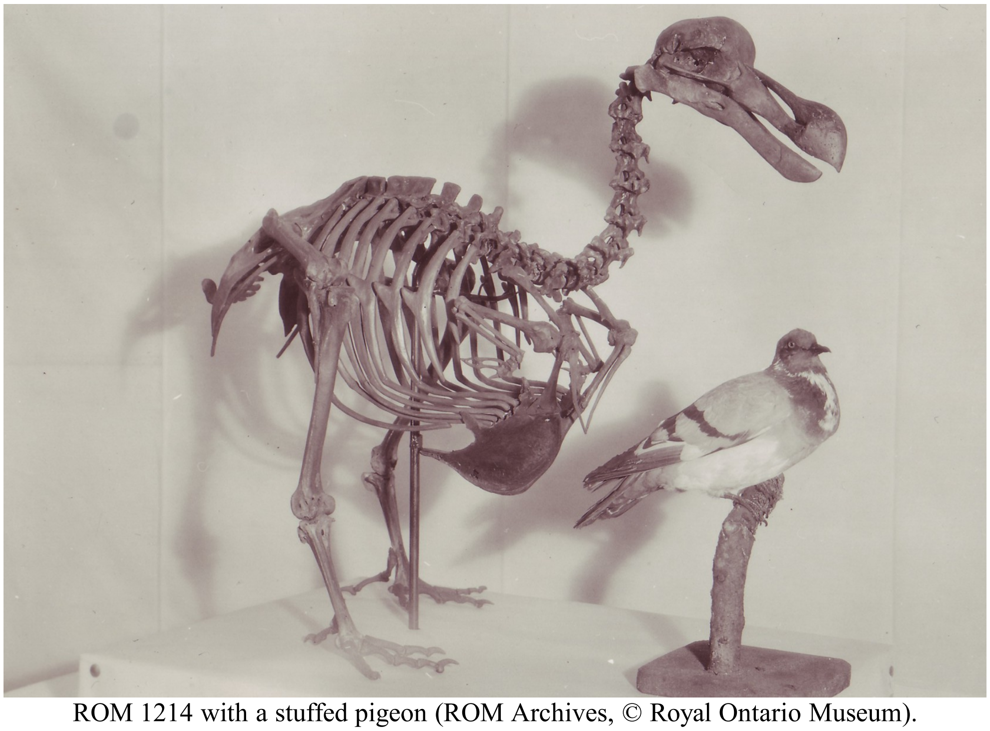
[157] The ROM website states: "This Dodo skeleton was originally assembled by Sir Richard Owen at the British Museum in the 1860s." However, this is most probably not the case, and even if the skeleton was assembled at the BM it would have been by one of the technicians, such as E. Gerard, jun. (http://images.rom.on.ca/public/index.php?function=image&action=detail&sid=&ccid=).

[158] James Henry Fleming (1872-1940). Canadian ornithologist. Made Honorary Curator of the Royal Ontario Museum of Zoology in 1927.



ROM 1214: *left*: the present mount, *right*: the mount with Levi Sternberg, *c*.1938 (ROM Archives, © Royal Ontario Museum).



ROM 1214 with a stuffed pigeon (ROM Archives, © Royal Ontario Museum).

Museum of the Boston Society of Natural History

Raphus cucullatus

At the meeting of the Boston Society of Natural History on 1st September 1841, "George W. Pratt, Esq. presented to the Society in behalf of his brother, W. Pratt, Jr., Esq., casts of the head and foot of the Dodo from the Ashmolean Museum" (Anon. 1844b, p.38).

Under the donations to the museum for 3rd January 1866, Anon. (1866c) listed a "Cast of the head of the

Dodo from the Museum at Oxford, England, by Dr. George Rolleston" (p.387).

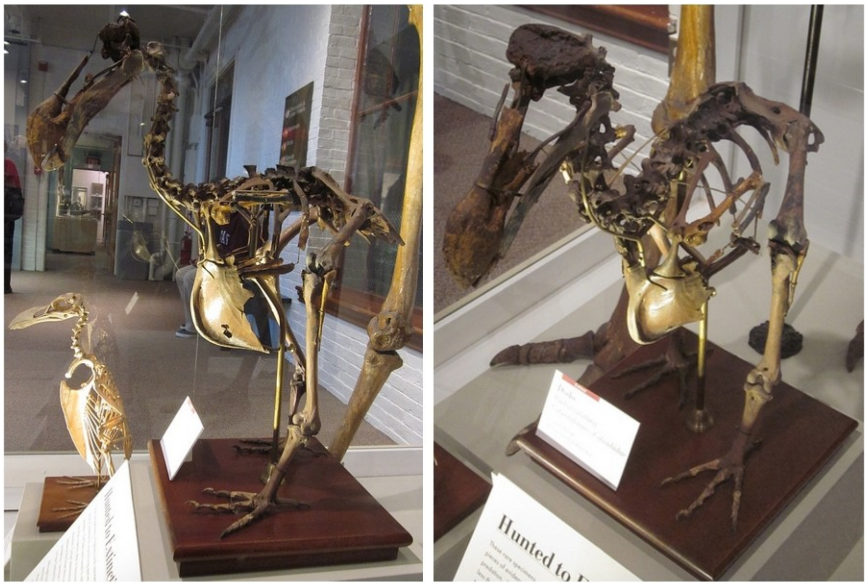
These specimens do not appear to be present in the MCZ collections (Jeremiah Trimble, pers. comm., 22nd October 2010).

Museum of Comparative Zoology, Harvard University

Museum of Comparative Zoology, 26 Oxford Street, Cambridge, Massachusetts 02138-2902, USA

Raphus cucullatus

MCZ 340825 near complete mounted skeleton, on display next to a reconstruction of the dodo. Received from J. Wyman?[159] Two dodo skeletons were obtained for Harvard partly through the influence of Louis Agassiz (Seymour 2003) in the 1870s. However, one skeleton was donated in an exchange with the ROM for an *Anchiceratops* skull (Seymour 2003; see Royal Ontario Museum, above). Hachisuka (1953) stated that there were two mounted skeletons, with many bones missing, although by this time the exchange had taken place and only one dodo skeleton remained at Harvard.[160] The Harvard skeleton was scanned in 3-D by laser on 10th February 2009: "the high-tech scanner [was] sitting on a tripod on the Museum of Comparative Zoology's (MCZ) fifth floor Tuesday (Feb. 10)" (Powell 2009, p.10). This was part of a joint work between Scott Edwards of MCZ and Leon Claessens of Holy Cross College, the "Aves 3D" project (Powell 2009). The skeleton was posititioned by Abby Drake and scanned by Michael Krzyzak (Powell 2009). The accompanying notice states that: "The skeleton, composed from many different individual Dodos, has more real bones than any other composite skeleton in North America". Some elements (*e.g.* cranium, upper beak) are casts and the right radius, ulna and carpometacarpus of the skeleton look paler in colour, suggesting perhaps bones from a non-Mare aux Songes source. Skull and mandible scanned 16th February 2009 (http://aves3d.org/specimens/2--Raphus-cucullatus/specimen_elements/2-Cranium).
Figured: Powell (2009, p.10); Holden (2010, p.765).



MCZ 340825 (© Martin Kalfatovic, 17th January 2011).

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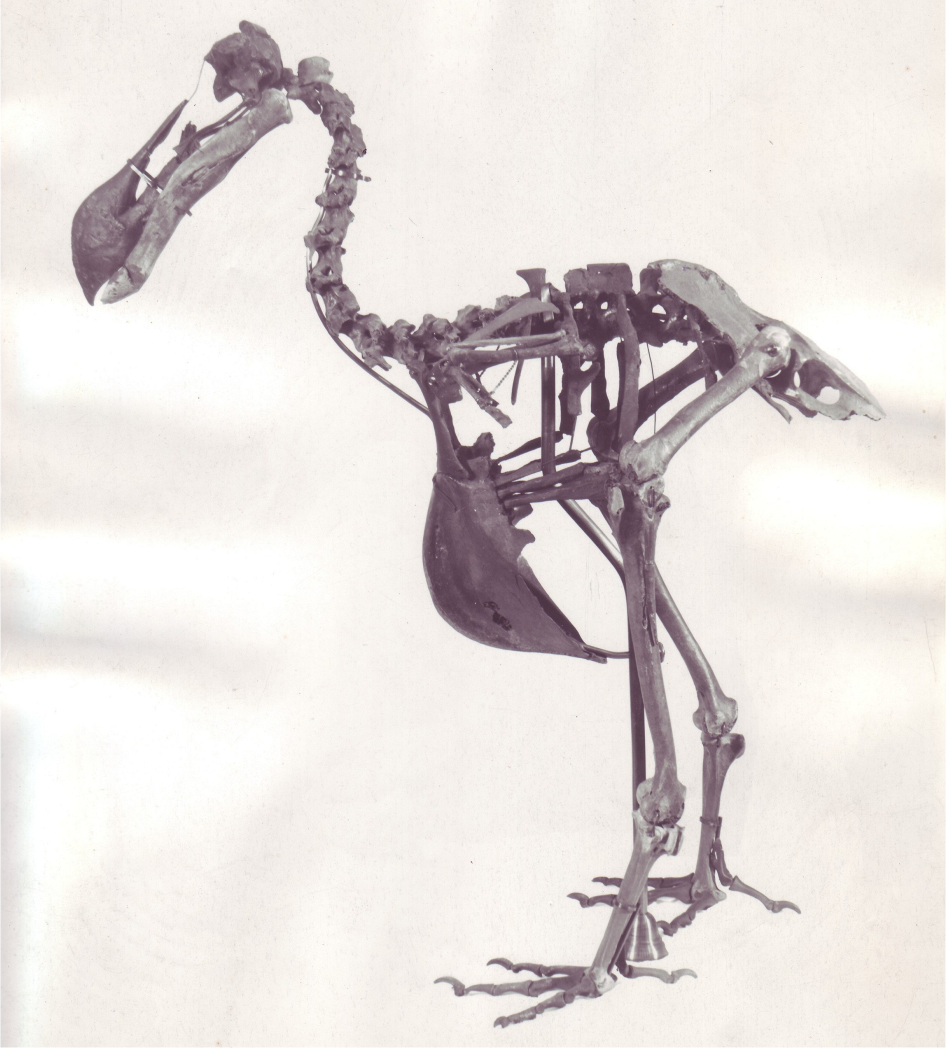
[159] Presumably Jeffries Wyman (1814-1874), American naturalist, Professor of Anatomy at Harvard College 1847-1874 and first director of the Peabody Museum. He studied with Richard Owen in 1842 and is also known to have donated specimens to the MCZ.

[160] This statement was repeated by Kallio (2005), who listed "Two incomplete reconstructed skeletons" (p.119).

W. R. G. Mellen, consul of the United States of America at Port Louis, (1869) remarked: "About three years ago, however, there was fished out from the bottom of a swamp, or quagmire, surrounded by steeply-sloping banks, a great variety of animal bones, amongst which were three nearly complete sets of Dodo bones. Two of these sets went to England, where one of them sold for a hundred pounds. The third I had the good fortune to secure for Professor [Louis] Agassiz, whose delight at receiving it, it was a peculiar satisfaction to witness" (p.194).[161] In the Annual Report of the Trustees of the Museum of Comparative Zoölogy, 1868, Allen (1869) noted the following was acquired by purchase: "1 dodo, from Mauritius, (through Mr. Mellers, [*sic*] U. S. Consul at Mauritius.)" (p.26). Fields (1881) noted: "Mr. Fields received a call to-day from our consul at Mauritius, who has brought to Boston two skeletons of the Dodo, the extinct bird of that island. The consul is anxious to see Mr. Agassiz. It is said there are no other complete skeletons. He suspected the possibility of their existence in a certain tract of marshy ground, and sent the natives in nearly to their necks in mud and water to feel about. After a time, they struck these bones with which he returned at once to New England, being convinced of their value as belonging to the real Dodo.... Mr. Agassiz seems to have enjoyed the 'Dodo' bones. They are not perfect, but valuable notwithstanding, and the best we have in America" (pp.117-118).



MCZ 340825 (ROM Archives, © Royal Ontario Museum).

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[161] Mellen (b. *c*.1822) departed from Port Louis and arrived in Boston on 8th September 1866 on board the *Dwineland*.

The list of additions to the Museum of Zoölogy made during 1894-1895 mention: “Casts of Aëtosaurus and of Dodo from the Oxford Museum” (Agassiz 1895, p.47). Under the “*Additions to the Collection during the Year*. 1895” to the Department of Vertebrate Palæontology, Eastman (1896) listed “Casts of *Pareisaurus Baini*, *Cetiosaurus Oxoniensis*, *Dodo ineptus*, *Dinotherium giganteum*, and various other casts, principally of fossil reptiles. Purchased. Received September 10, 1895” (p.54).

The skull and mandible of the skeleton are available to view as a 3-D computer model.[162]

The following data is from Kate Eldridge (*via* Jeremiah Trimble, pers. comm., 22nd October 2010), the “Catalogue of Bones of Birds in the Museum of Comparative Zoölogy” and the webpages cited (accessed 2 February 2012).

MCZ 341168 (formerly MCZ 1168) left ulna [scanned 16th June 2011: http://aves3d.org/specimens/174--Raphus-cucullatus/specimen_elements/618-Left-Ulna]
MCZ 341169 ‘metatarsal’ (“Catalogue of Bones of Birds in the Museum of Comparative Zoölogy”)
MCZ 341170 right carpometacarpus
MCZ 341171 “part of mand.” (“Catalogue of Bones of Birds in the Museum of Comparative Zoölogy”)
MCZ 341172 fragment of pelvis
MCZ 341173 fragment of pelvis
MCZ 341174 [not identified in “Catalogue of Bones of Birds in the Museum of Comparative Zoölogy”]
MCZ 341175 tibiotarsus
MCZ 341176 tibiotarsus
MCZ 341177 fragment of femur
MCZ 341178 fragment of tibiotarsus
MCZ 341179 tibiotarsus
MCZ 341180 fragment of tibiotarsus
MCZ 341181 tibiotarsus
MCZ 341182 tibiotarsus
MCZ 341183 fragment of long bone
MCZ 341184 fragment of tarsometatarsus
MCZ 341185 distal end of tarsometatarsus
MCZ 341186 fragment of tarsometatarsus
MCZ 341187 distal end of tarsometatarsus
MCZ 341188 fragment of long bone
MCZ 341189 fragment of bone
MCZ 341190 fragment of long bone
MCZ 341191 fragment of long bone
MCZ 341192 fragment of long bone
MCZ 341193 fragment of pelvis
MCZ 341194 fragment of legs [*sic*]
MCZ 341506 (formerly MCZ 1506) cast of the Tradescant head. Received the from Harvard Natural History Society. Presented to H.N.H.S. 20th November 1846 by Edward Everett.[163] From a cast in the British Museum. On the base in ink are written: “M.C.Z. 1506” “HNHS Presented by E. Everett LLD From a cast in British Museum” “HC 453”. Attached label: ‘1’. [scanned 2nd June 2011: http://aves3d.org/specimens/168--Raphus-cucullatus/specimen_elements/566-Mummified-Head]
MCZ 341507 cast of head
MCZ 341508 left humerus, right humerus, two left femora, two left tibiotarsi, two right fibulae, two left tarsometatarsi, “1st phalanx of inner toe”. “N. Pike” written on label of phalanx. Date: 1936. [fibula scanned 16th June 2011:

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[162] Date scanned: 16th February 2009; scan technician: Mark Eckardt; edited by: Michael Krzyzak; scanner: Konica Minolta Range7; resolution: 40 µm; number of data points: 100288; number of data polygons: 199836. Data from: http://aves3d.org/specimens/2--Raphus-cucullatus/specimen_elements/2-Cranium [accessed 19 August 2010]

[163] Edward Everett (1794-1865). United States of America ambassador to Great Britain 1841-1845. President of Harvard University 1846-1849.

http://aves3d.org/specimens/173--Raphus-cucullatus/specimen_elements/617-Right-Fibula]

MCZ 341509 (formerly MCZ 1509) cast of the BM foot [scanned 2nd June 2011: http://aves3d.org/specimens/167--Raphus-cucullatus/specimen_elements/565-Right-Pes]

MCZ 341511 (formerly MCZ 1511) painted cast of the Tradescant head. Possibly received from the Zool. Mus. Copenhagen in 1884.

MCZ 341512 articulated cast of the Tradescant tarsometatarsus and phalanges. Possibly received from the Zool. Mus. Copenhagen in 1884.

MCZ 341513 (formerly MCZ 1513) metal cast of the Copenhagen skull. Received from Lütken, Zool. Mus. Copenhagen, 1884.

MCZ 341514 (formerly MCZ 1514) painted cast of the Tradescant head. Purchased by A. Agassiz from Oxford University Museum, 9th September 1895.

MCZ 341515 cast of the Tradescant tarsometatarsus and phalanges. Bought by A. Agassiz from Oxford University Museum, 9th September 1895. [individual elements scanned 16th June 2011: http://aves3d.org/specimens/177--Raphus-cucullatus/specimen_elements/624-Left-Tarsometatarsus and links therefrom]

In the "Catalogue of Bones of Birds in the Museum of Comparative Zoölogy" the entries for MCZ 341168 – MCZ 341194 give the following data: 'Locality': 'Mauritius', "Received from": 'Purchased', 'Remarks': 'Fossil'. The words "transferred to paleont. dept" are written alongside these entries, but this has been crossed through in pencil. MCZ 341169, 341171 and 341174 are no longer in the collection (Jeremiah Trimble, pers. comm., 23rd August 2012).

Scan Technician: Mark Eckardt (MCZ 340825 skull), Andy Biedlingmaier (MCZ 341515), Ariana Masi (MCZ 341168, MCZ 341508, MCZ 341509)

Edited by: Michael Krzyzak (MCZ 340825 skull), Ariana Masi (MCZ 1506, MCZ 341515, MCZ 341168, MCZ 341508, MCZ 341509), Andy Biedlingmaier (MCZ 341515), Maggie Johnson (MCZ 1506)

Pezophaps solitaria

MCZ 337679 (formerly 341508-C, data entered in catalogue under MCZ # 341508) left ♂ femur, bearing '1508-A' in black ink [scanned 16th June 2011:
http://aves3d.org/specimens/176-Pezophaps-solitaria/specimen_elements/621-Left-Femur]
left ♂ tarsometatarsus, '1508-A' in black ink [scanned 15th June 2011:
http://aves3d.org/specimens/176-Pezophaps-solitaria/specimen_elements/626-Left-Tarsometatarsus]
Accompanying label reads "No. 1508-A", '341508-A'.

MCZ 337680 (formerly 341508-B, data entered in catalogue under MCZ # 341508) left ♂ humerus, bearing '1508-B' in black ink [scanned 16th June 2011:
http://aves3d.org/specimens/175-Pezophaps-solitaria/specimen_elements/619-Left-Humerus]
left tibiotarsus
right fibula, bearing '1508B' in black ink [scanned 16th June 2011:
http://aves3d.org/specimens/175-Pezophaps-solitaria/specimen_elements/620-Right-Fibula]
left ?♀ tarsometatarsus, bearing '1508-B' in black ink [scanned 15th June 2011:
http://aves3d.org/specimens/175-Pezophaps-solitaria/specimen_elements/625-Left-Tarsometatarsus]
Accompanying label reads: "No. ~~1508-B~~", "MCZ ~~341508-B~~ 337680".

MCZ 341510 (formerly MCZ 1510) left ♂ femur, bearing '1510' in black ink. "Coll. A. Newton" [scanned 2nd June 2011:
http://aves3d.org/specimens/169-Pezophaps-solitaria/specimen_elements/568-Left-Femur]
right tibiotarsus and fibula [scanned 16th June 2011:
http://aves3d.org/specimens/169-Pezophaps-solitaria/specimen_elements/616-Right-Tibiotarsus-and-Fibula]
right ♂ tarsometatarsus, bearing '1510' in black ink [scanned 2nd June 2011:
http://aves3d.org/specimens/169-Pezophaps-solitaria/specimen_elements/569-Right-Tarsometatarsus]
Although Hachisuka (1953) lists "one fairly complete skeleton" (p.100) for the MCZ, the "Catalogue of Bones of Birds in the Museum of Comparative Zoölogy" only lists "Femur, tibia,

and metatarsus" (see below) and under "Nature of Specimen" gives "unm'n'd bones".

Sex determinations based on Livezy's (1993) data and photographs of the specimens.

Scan Technician: Ariana Masi (MCZ 337679 (left femur, left tarsometatarsus), MCZ 337680 (left femur, right fibula, left tarsometatarsus), MCZ 341510 (left femur, right tibiotarsus and fibula)).
Edited by: Ariana Masi (MCZ 337679 (left femur), MCZ 337680 (left femur, right fibula), MCZ 341510 (left femur, right tibiotarsus and fibula, right tarsometatarsus)), Maggie Johnson (MCZ 337679 (left tarsometatarsus), MCZ 337680 (left tarsometatarsus), MCZ 341510 (right tarsometatarsus))

The skeletons of the dodo and solitaire were formerly exhibited in Room 155 (Fossil Vertebrates: Barbour 1936). Laser scanning of the bones of the dodo and solitaire was conducted using a Konica Minolta Range7 scanner (resolution: 40 µm).

The following gives the entries for the columns "Received from", "When Received" and 'Remarks' from the "Catalogue of Bones of Birds in the Museum of Comparative Zoölogy":

	Received from	When Received.	REMARKS.
MCZ 341506	Harvard Nat. Hist. Soc.		Pres. to H.N.H.S. Nov. 20, 1846 by Edw. Everett. From cast in Brit. Mus. Orig. in Ashmolean Mus., Oxford. Orig. unique.
MCZ 341507			
MCZ 341508	~~N. Pike~~	~~1871~~	r. hum. 2 r. fib. l. hum. 2 l. fem. 2 l. tib. 2 l. metatarsus. 1st phalanx of inner toe
MCZ 341509			2 feet of Dodo extant, one in Brit. Mus., one in Oxford. This is from the latter
MCZ 341510	Prof. A. Newton		Femur, tibia, and metatarsus [Mus. Oxford, Eng.
MCZ 341511	Zool. Mus. Copenhagen?	1884?	cast from head in Ashmolean [langes
MCZ 341512	" " "	"	Complete, except 3 terminal pha-
MCZ 341513	Zool. Mus. Copenhagen	1884	Orig. in Mus. R. University of Copenhagen. Rec^{d} fr. Prof. Lütken.
MCZ 341514	Oxford U. Mus.	Sept. 9, 1895	Cast from the Oxford head. Purchased by A. Agassiz
MCZ 341515	" " "	"	Same as No, 1512 Bght by A. A.

Peabody Museum, Connecticut

Peabody Museum of Natural History, Yale University, 170-210 Whitney Avenue, New Haven, Connecticut 06511, USA. Formerly stored in the Division of Birds, now kept in the Vertebrate Paleontology collections.

Raphus cucullatus

Ames & Stickney (1968) listed: "S [complete skeleton] (cast); also 2 incomplete skeletons" (p.18) for *Raphus cucullatus*.

YPM 14504 (421) No.10. Left tibiotarsus, lacking distal end. Not dodo, but *Phoenicopterus ruber roseus* (identified by Storrs L. Olson). Label reads: "Shaft of Left tibia of Dodo". Sent to Olson 6th February 1991 (received by Olson 10th February 1991).

YPM ORN.102266 (original catalogue number Osteo 1012 (ORN.O.01012). This specimen is recorded in the accession records as "skin, round." However, it is not present in the Vertebrate Paleontology collections (Dan Brinkman, pers. comm., 13th April 2012). Notes from the Peabody Archives on YPM dodo specimens record: "ORN.102266 = Osteo 1012 Either in mounted skeleton or is missing". The number 1012 does not appear in the YPM skin catalogue (Kristof Zyskowski, pers. comm., 19th April 2012) and the designation "skin, round" is almost certainly an error. The following note in the Argus catalogue was written by Mary Ann Turner on 30th March 2001:

> ID – This number appears on the Lewis invoice as the third specimen of dodo borrowed by Lewis. The other two are osteology specimens so it is assumed that this is/was also. The number does not currently appear in argus. It is not an accession number and there are no other dodo catalog numbers, for skeletons or anything else, that this would appear to be a typo of.

A corresponding Vertebrate Paleontology loan record notes that Osteo 1012 was one of three dodo specimens loaned to Arnold D. Lewis of Arizona in 1962. This loan is closed (*i.e.* the specimens were returned) (Kristof Zyskowski, pers. comm., 19th April 2012).

YPM ORN.102454 (original catalogue number Osteo 2056 (ORN.O.02056); accession number YPM.00452) casts donated by Othniel Charles Marsh, from Edward Gerrard, Jr. ("Yale Museum Osteological Collection"): mandibular symphysis and left ramus plus right ramus (make up a whole mandible), mid cervical vertebra (?6th-9th), cervical vertebra (?9th or 10th), cervical vertebra (12th), seven sternal ribs / rib fragments, left femur, right tibiotarsus, left tibiotarsus, right fibula, left fibula, right tarsometatarsus, left tarsometatarsus. Label in box reads: "945b Didus ineptus (Cast) Coll: from E. Gerrard Jr. Donor: O. C. Marsh". Purchased by Marsh from Gerrard, Jr., 61 College Place, Camden Town, London. "Cast of bones of dodo – L2 19". Received 28th May 1873 (YPM ledger). Records mention casts of femora, tibiotarsi and tarsometatarsi. No locality data. Sternum [scanned 12th February 2009: http://aves3d.org/specimens/104--Raphus-cucullatus/specimen_elements/208-Sternum]

YPM ORN.102462 (original catalogue number Osteo 2064 (ORN.O.02064); accession number YPM.00991) bones purchased by O. C. Marsh from Bryce McMurdo Wright, Jr.[164] 1877. Mandibular symphysis, medial portion of left mandibular ramus, proximal end of right mandibular ramus, cervical vertebra (12th), synsacrum (lacks caudal extremity), caudal end of sternum, acetabular region of left side of pelvis, right femur (damage cranially to greater trochanter, lacks distal end), left tibiotarsus (damage to proximal end craniomedially, lacks distal end), right tarsometatarsus. "B. M. Wright – Dodo bones". Received 4th August 1877 (YPM ledger). One box of dodo bones, stored in display case from 'Old' Museum. Records also mention a scapula. Associated with accession no.991 are two letters:

Letter from Bryce M. Wright to Othniel Charles Marsh, 20th July 1877 (transcription in YPM Archives):

> July 20th, 1877
>
> Prof. O. C. Marsh
>
> Dear Sir
>
> I have procured a very nice small lot of Dodo bones so have had the pleasure of forwarding them as you desired me to send all Bird Bones possible. They are very nice & becoming extremely scarce. The price is 8 Ł for the whole. I have not yet had the pleasure of an answer from Profr. Guyot although anxiously waiting his favoured.
>
> (I try) to Remain
> Dear Sir; always
> Most obediantly yours
> Bryce M. Wright

YPM ORN.102463 (original catalogue number Osteo 2065 (ORN.O.02065); accession number

---

[164] Bryce McMurdo Wright, Jr. (1850-1895/96). Mineral collector and dealer. He was located at 37 Great Russell Street, London 1874-1876, 38 Southampton Row 1874-1876 and 90 Great Russell Street 1876-1881. He worked with his father, Bryce McMurdo Wright, Sr. (?1814-1874), whose business was based at 90 Great Russell Street during the period 1866-1874.

YPM.00667). Pleistocene / Recent. Purchased from Henry Augustus Ward[165] of Rochester, New York. "H. A. Ward – Didus ineptus bones". Received 30th January 1875. Three boxes of osteological specimens, including dodo. ?Missing? Records mention four femora, four tarsometatarsi (no catalogue or accession number); label: "No data – may include some or all of currently (1- '85) missing osteo 2065 but no number found on bones." A note in the Peabody Archives on YPM dodo specimens states: "specimen not found in 1991".

YPM ORN.103123 (original catalogue number Osteo 4802 (ORN.O.04802); accession number YPM.06780) mandibular symphysis and proximal ~half of left ramus, mandibular symphysis and proximal ~half of right ramus, proximal ends of right and left mandibular rami, six cervicals (bearing numbers in black ink: 10131/19, 10131/43 (?11th), 10131/65, 10131/73, 10131/139, 10131/151; collected by Jim Morrow[166]), right scapula (10118/34), left scapula (10119/3; damaged distally), right tibiotarsus (damaged proximocranially). Collected by Yale Seychelles Expedition,[167] 1957. Received March 1957 (YPM ledger). Label reads: "4802 Bones checked were found in Feb. 1990. Others were presumably used in skeleton reconstruction". Peabody Archives on YPM dodo specimens also record left and right femora, left tibiotarsus, a fibula, left and right tarsometatarsi and thirteen cervical and thoracic vertebrae (six cervicals of which are accounted for above); these were 'secured' by Jim Morrow from Jean Vinson, Curator of the Mauritius Museum. Most of the limb bones and some vertebrae were used in the composite mount.

Letter from Jean Vinson, notepaper headed "THE MAURITIUS INSTITUTE":

> 5th January 1958.
>
> A few Dodo bones from Mauritius, sent to the Yale University Museum. Letter follows.
>
> [signed J. Vinson]
> Director.

Labels accompanying ORN.103123 read:

> Yale Seychelles Expedition
> circa 1958
> secured by Jim Morrow
> on Mauritius through
> Dr. Vinson, Curator of
> the Mauritius Museum
> and Secretary of the
> Royal Society of Mauritius
>
> # 4802
> Dodo Bones.
> Mauritius Island –
> Seychelles Expidition [*sic*]
> Procured from Dr. Vinson 1975

"R fem, L fem, R tib, L tib, R mand, L. mand, R supraangular, L supraangular, R tmt, L tmt, R scap, L scap. 13 cv + thoracic 1 fib."

---

[165] Henry Augustus Ward (1834-1906). American naturalist and geologist. Professor at the University of Rochester until 1865. In Rochester, he established Ward's Natural Science. Ward sold casts of fossils, including the head and foot of the dodo (Ward 1866, 1870).

[166] James E. Morrow Jr., chief scientist of the Yale Seychelles Expedition of 1957.

[167] The Yale Seychelles Expedition was undertaken with the ketch *Argosy*.

Cervical vertebrae (YPM ORN.103123) (© Jolyon C. Parish, May 2001).

YPM ORN.111116 (original catalogue number 14501 (ORN.O.14501)) left and right tibiotarsi (both damaged proximocranially and slightly distally; both brownish), right tibiotarsus (damaged slightly proximocranially; black), shaft of left tibiotarsus (brown), three right tarsometatarsi (one damaged slightly proximally), left tarsometatarsus. Label reads: "No data. Could be /667/ cat. no. 2065 bones of Didus ineptus received from H. A. Ward Jan. 30, 1875 – all other material accounted for or could be more of /421/ or /456/". 'Madagascar'. No accession data.

YPM ORN.111117 (original catalogue number Osteo 14502 (ORN.O.14502); accession number YPM.00456): two median portions of the right mandibular ramus, a median portion of the left ramus, and a fragment of ramus; the synsacral and pelvic fragments comprise a fragmentary synsacrum (lacking cranial and caudal ends), two fragments of the caudal portion of synsacrum, one fragment of the dorsal crest of the synsacrum with adjacent portions of the ilia attached, the cranial part of the right acetabular region, a fragment from the region ventral to the ilioischiadic foramen and the caudal part of the left acetabular region, left tibiotarsus (lacks proximal end; "Didus ineptus 4/-"), left tarsometatarsus ("Didus ineptus 4/-"), right tarsometatarsus. Pleistocene / Recent, field no. 69. 'Madagascar'. Also placed with these bones are a distal end of scapula and a bone fragment (presumably these were included as mandibular fragments in the list given below). Label reads: "14502 /456/ "No.69" Item 69 of shipment. Received from Bryce M. Wright (90 Great Russell Street, London), £1 185". "B.M. Wright L1 18 – bones of Dodo". YPM ledger: received 22nd May 1873 from B. M. Wright, via purchase, three boxes of fossils, *etc*. Various vertebrate fossils, costing £91-0-0. For list see Wright's letter of 21st March 1873. 20th March 1873. Collected: B. M. Wright, 30th March 1873. The accompanying information lists six beak fragments (see mandible and other fragments listed above), seven pelvic fragments (see above), proximal end of left tibiotarsus (may be fit with the above) and left and right tarsometatarsi (see above). Letter from Bryce M. Wright to Othniel Charles Marsh, 20th March 1873:

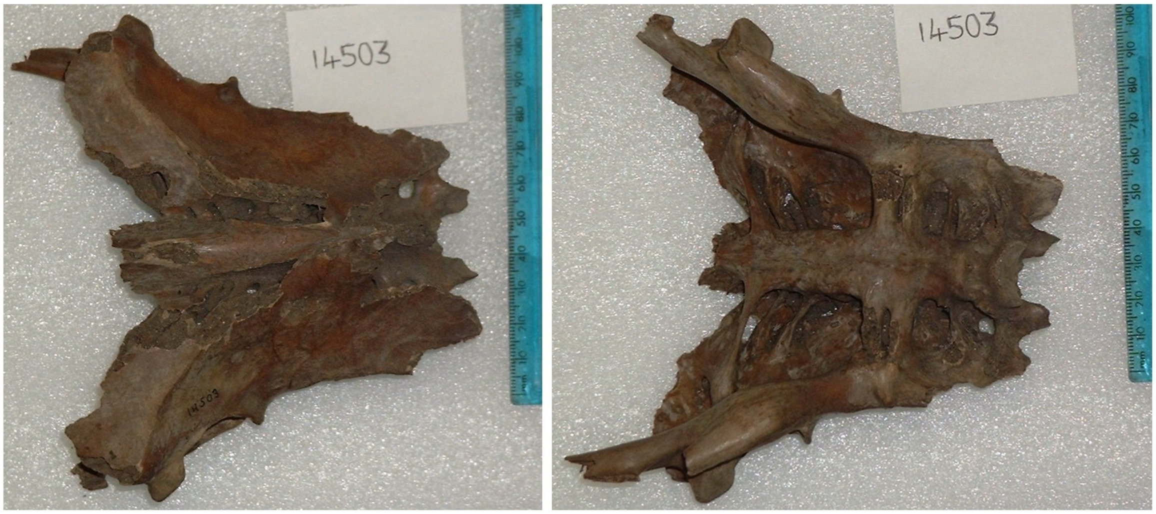
90, GREAT RUSSELL STREET, BLOOMSBURY,
London, W.C. March 20th 1873
Profr. O. C. Marsh,
Bryce M. Wright,
Mineralogist, Geologist and Conchologist.
[...]
[No.] 69. Bones of Dodo – 1.. 18.. 0
[...]
£91.. 0.. 0

Letter from Bryce M. Wright to Othniel Charles Marsh, 21st March 1873:

90, GREAT RUSSELL STREET, BLOOMSBURY,
London, W.C. March 21st 1873

Prof^{r}. O. C. Marsh,
Bryce M. Wright,
Mineralogist, Geologist and Conchologist.
Dear Sir,
I beg to inform
you of having forwarded today
per Stavely & Co, American
European Express three cases
containing fossils of which
the enclosed is List. [see above] [...]
I Remain Dear Sir
Yours most obediently
Bryce M Wright

YPM ORN.111118 (original catalogue number Osteo 14503 (ORN.O.14503); accession number YPM.00421, no.10 (*i.e.* 10th item under accession #)): median portions of mandibular ramus: two right, three left, one indeterminate [labels lists seven mandible fragments], cranial end of synsacrum (cranialmost 13 vertebrae; damaged dorsally and caudally), caudal end of synsacrum (caudalmost seven vertebrae of synsacrum), synsacrum (damaged dorsally and caudally) with attached right acetabular region of pelvis, cranial portion of pelvis (including acetabula), two right and two left acetabular portions of pelvis, two left tibiotarsi (one damaged proximocranially, bent caudally in region of fibular crest, one lacking proximal extremity), right tibiotarsus (lacks distal extremity and damaged proximocranially), four left tarsometatarsi (one with damage to proximolateral corner, one with damage to trochleae and lacking proximal extremity, one with slight damage proximally), four right tarsometatarsi. Pleistocene / Recent. Included in two boxes of vertebrate fossils purchased from Bryce M. Wright; received 11th January 1873 (YPM ledger). Received June 11, 1902 from Bryce M. Wright, London (probably an error; pencil note reads: "Jan. 11 1873"), invoice no.10. Label reads: "From Bryce M. Wright London. Part of large shipment received Jan. 11 1873. Dodo bones cost £3 8s." A note in the Peabody Archives on YPM dodo specimens reads: "B.M. Wright Dodo inexptus & Dodo sp? – L3 8." 'Madagascar'. Records also mention a fibula. Sternum [scanned 12th February 2009: http://aves3d.org/specimens/105--Raphus-cucullatus/specimen_elements/209-Sternum] Right tarsometatarsus [scanned 12th February 2009: http://aves3d.org/specimens/105--Raphus-cucullatus/specimen_elements/210-Right-Tarsometatarsus]



Fragmentary pelvis (YPM ORN.111118) (© Jolyon C. Parish, May 2001).

YPM ORN.111120 (original catalogue number Osteo 14505 (ORN.O.14505)) numerous casts of six elements. Not dodo. A note in the Peabody Archives on YPM dodo specimens states: “casts of 6 different element [*sic*] (wing?) and from 2-7 copies of each.” ‘Madagascar’. No accession data.

YPM ORN.111121 (original catalogue number Osteo 14506 (ORN.O.14506); accession number YPM.01709) cast of the Copenhagen skull and mandible. Received 20th August 1884 from Christian Frederik Lütken, University of Copenhagen, Denmark, via donation (YPM ledger). Labels reads: “Meddelelse fra Universitets zoologiske Museum (Krystalgade) Kjobenhavn d. 28/4, 1884.” ‘Madagascar’. A note from the Peabody Archives on YPM dodo specimens reads: “presumably use [*sic*] in preparation of skeleton on exhibit. Probably accession # 1709 – “cast of cranium and lower jaw””.

YPM no catalogue number plaster casts of some of the dodo bones from MCZ which were combined with YPM ORN.103123 to construct the mounted skeleton on display in the Great Hall (1985): coracoid and fused proximal end of scapula, ulna and radius, carpometacarpus and phalanx 1 of digit II, digits of foot II III IV II III, two proximal pedal phalanges, digit IV of foot (broken), digit I of right foot.

YPM no catalogue number (accession number 2536) Four casts of the Oxford head (made prior to dissection). “DODO… Oxford… 1835… G. Mantell” is written on the base of one. “Head of… Dodo… Oxford Museum” on the jaw of another cast (?original); this (or one of the other cast(s)) may be the one given to Yale by Rev. Burdett Hart[168] in 1900. No record has been found to suggest that Mantell himself sent one to Yale (data from records). Records for one cast read: “taken from an original specimen at the Ashmolean Museum, Oxford.” Received from Burdett Hart, 22nd May 1900, presented to him by the curator of the Ashmolean Museum. A handwritten note by Burdett Hart accompanies the specimens:[169]

> The Head of the Dodo.
>
> There are few existing relics of this extinct bird
> In the British Museum is a leg [?] at
> Ashmolean Museum at Oxford are a head & a
> leg. Capt. Cook speaks of it as being very
> numerous on some of the islands of the southern
> Seas. Several casts, in plaster, [were taken] [...]
> years ago of this head which [were distributed] [...]
> [various] [...] This cast, the last, was
> given to me by the Curator "if I [would] carry it to
> America."
> I now give it to the Peabody Museum of the Yale
> University, to be kept there in permenance.
> Burdett Hart
>
> New Haven
> March 1900

YPM no catalogue or accession number two casts of the BM foot. “Rev. Burdett Hart who supplied a cast of the head from the Ashmolean Museum did not apparently give the foot.”

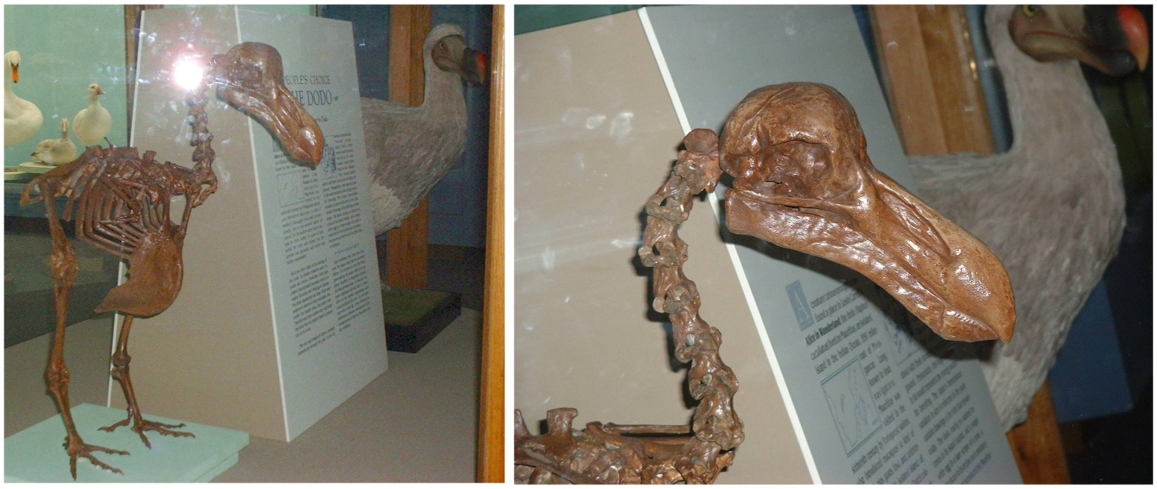
YPM no catalogue or accession number cast of sternum (original was damaged caudally, with some slight damage to the carina ventrally). “Origin unknown. May have been made when fabricating dodo for display.”

Skeleton (no catalogue number of its own: Dan Brinkman, pers. comm., 19th April 2012). Composite mounted skeleton, comprising at least part of ORN.103123 and casts of some limb and foot bones from one or more MCZ specimens. Loan records state that the mount-maker borrowed ORN.103123, 102266, and 102454 while constructing the mount, and as such parts of all three might have been incorporated into it (Dan Brinkman, pers. comm., 19th April 2012). A note from the Peabody Archives on YPM dodo specimens indicates that previous collection staff considered the mount might also include ORN.111121 (no longer present in the collections). However, the skull cast in the mounted skeleton has two pterygoids, whereas the Copenhagen skull lacks the left one. An old exhibition label reads: "Right: Subfossil skeleton of the Mauritius Dodo, Raphus cucullatus Linnaeus. This mount, a composite of Yale Peabody Museum Ost. Coll. No. 4802 [YPM ORN.103123] and casts from the Museum of Comparative Zoology, Harvard, was mounted in 1963 by A. D. Lewis [of Harvard]. The Yale specimen was obtained in 1958 from Dr. Vinson, Curator of the Mauritius Museum, by members of the Yale Seychelles Expedition. This is one of about twenty existing skeletal mounts of the dodo" (Peabody Archives on YPM dodo specimens; the YPM reconstruction of the dodo was displayed to the left of the skeleton, as it currently still is (pers. obs., 2001)).

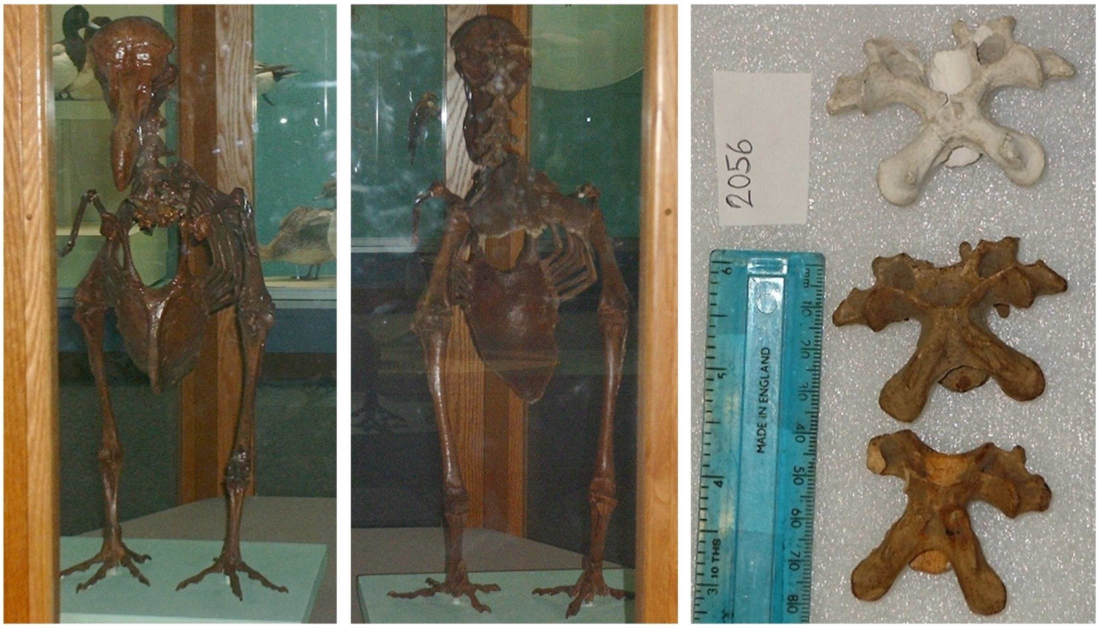
---

[168] Burdett Hart (1821-1906). American pastor. Reverend of New Haven. Graduate of Yale University. In the summer of 1857 he went abroad for several months.

[169] The words in square brackets are guesswork, as Burdett Hart’s handwriting is somewhat difficult to read.



YPM dodo skeleton on display (© Jolyon C. Parish, May 2001).



Left: YPM dodo skeleton on display, *right*: casts of cervical vertebrae (YPM ORN.102454) (© Jolyon C.

Parish, May 2001).

Partial mandible bearing the number 10132/13 (Dan Brinkman, pers. comm., 19th April 2012).

Note: the dodo bones from the YPM Osteology Collections moved to the VP Collections, 8th April 2001. The six-digit YPM Ornithology catalogue numbers were given to the specimens in the early 2000s. Formerly they bore YPM Osteology catalogue numbers (Dan Brinkman, pers. comm., 29th March 2012; the Osteology catalogue numbers were still in use in April 2001: pers. obs.).

Labels accompanying YPM ORN.102454, 102462 and 102463 read, respectively:
"2056 Raphus cucullatus MISSING Feb 3, 1989"
"2064 Raphus cucullatus MISSING Feb 3, 1989"
"2065 Raphus cucullatus MISSING Feb 3, 1989".

Laser scanning:
Scanner: Konica Minolta Range7
Resolution: 100 µm
Scan Technician and Editing: Abby Grace Drake
[webpages for laser scanning: accessed 2 February 2012]

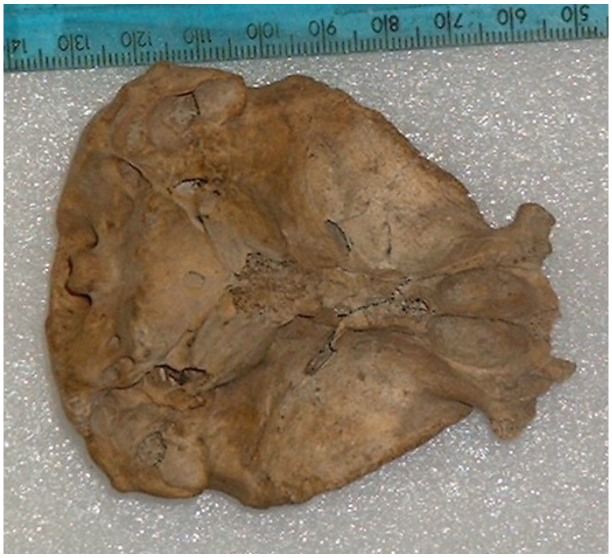
In a letter Othniel Charles Marsh dated 29th November 1877, Bryce M. Wright mentions bones of the dodo. However, it appears that Marsh did not, in fact, purchase these specimens (this letter being the final one in the Marsh Correspondence). The letter (transcription in YPM Archives) reads:

> Nov 29th 1877.
>
> Prof. O. C. Marsh
>
> Dear Sir,
>
> I have the honour to acknowledge the receipt of your favoured (enclosing) draft for 8Ł with many thanks. I wrote only a few days ago about the Plesiosaurus offering it with the Dodo bones for (150 Ł) if I could get the matter settled.
>
> If this would meet your views I would be pleased when I get any other fossils likely to suit you to send them at reduced rates to make the matter up.
>
> I have been promised some Mammalia from France. I have also a pretty good Ursus spaeleus nearly complete.
>
> I remain Sir
> Always
> Most obediantly yours
> Bryce M. Wright

The sole specimen of *Plesiosaurus* bought from Wright was part of accession number 421, received on 11th January 1873 (YPM ORN.111118 was also part of accession number 421). This would also explain why no accession number was written at the top of the letter (Dan Brinkman, pers. comm., 3rd May 2012).

Pezophaps solitaria

YPM VP.057037 (accession number 1154) bones: cranium (♂), left quadrate (♂; lacks orbital process), left quadrate (?♀), proximal ends of right and left mandibular rami (?♀), cervical vertebrae (?♀; ?10th, 12th), notarium (?♀; composed of 15th and 16th vertebrae fused together), 17th vertebra (?♀?; separate, but articulates with the 16th vertebra of the notarium), three vertebral ribs (two ?right, one ?left), pair of coracoids (♂), pair of coracoids (♀), right scapula (♂), right scapula (?♂; lacks distal end), right and left humeri (♂), right and left humeri (♀), left ulna (♂; very slight exostosis distally), right radius (♂; exostosis distally), left carpometacarpus (♀), pair of femora (♂), pair of femora (♀), pair of tibiotarsi (♂; right one slightly damaged proximomedially), pair of tibiotarsi (some damage proximocranially to both), pair of fibulae (?♂), pair of fibulae (?♀), right tarsometatarsus, pair of tarsometatarsi (♀), proximal and distal ends of left tarsometatarsus plus a fragment of shaft (from the same bone?), proximal pedal phalanx (?digit II or III), two small pedal phalanges (digit IV). Royal College of Surgeons, Transit of Venus Expedition, 1874. Received on 6th August 1878, through William Henry Flower. Brought by O. C. Marsh from London.



Solitaire cranium, ventral view (YPM VP.057037) (© Jolyon C. Parish, May 2001).

American Museum of Natural History, New York

American Museum of Natural History, New York, New York, USA

Raphus cucullatus

Department of Vertebrate Paleontology

AMNH FR 48 pelvis (damaged cranially, lacks caudal end). Collected by James Carson Brevoort,[170] gift to the AMNH. [Labelled as "*Raphus cuculatus*" "Podicipedidae" "Pleistocene" on web catalogue http://paleo.amnh.org/fossil/FRC.spec_card?spec_id=48].

AMNH FR 51 right femur, left tibiotarsus, right tibiotarsus, left tarsometatarsus. [Labelled as right femur, left tibiotarsus tarsometatarsus "*Raphus cuculatus*" "Podicipedidae" "Pleistocene" on web catalogue http://paleo.amnh.org/fossil/FRC.spec_card?spec_id=51].

AMNH 1775 uncoloured cast of the Tradescant head (made prior to dissection). Label reads: "~~A.M. 1507~~ A.M. 1775". [Formerly labelled as "*Didus ineptus*" "Podicipedidae" on web catalogue http://paleo.amnh.org/fossil/FRC.spec_card?spec_id=1775].

AMNH 3852 two mandibular symphyses & distal ~half of right ramus, mandibular symphysis & distal ~half of left ramus, proximal ~half of right mandibular ramus, proximal end of right mandibular ramus (blackish), three scapulae (lack distal extremities): one right & two left, right scapulocoracoid (lacks distal end of scapula), right femur, left tibiotarsus (damaged proximocranially), right tarsometatarsus. Presented as a gift to the AMNH by Clive Forster-Cooper,[171] Cambridge University, England. Port Louis. In the list of accessions by gift for the Department of Vertebrate Paleontology in 1908 is listed: "C. Forster Cooper, Cambridge University, England. Fossil Tortoise skull and remains of Dodo from the Island of Mauritius"

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[170] James Carson Brevoort (1818-1887). American naturalist. Brevoort studied ichthyology, entomology and history.

[171] Clive Forster-Cooper (1880-1947), English palaeontologist. Director of the UMZC 1914-1937, Director of the BM(NH) 1938-1947.

(Anon. 1909, p.63).[172] Web catalogue lists "3852 *Didus sp* 4 partial lower jaws femur tibia metatarsals 3 ends of metacarpals coracoid & 5 scapulae" "Port Louis" "Holocene" (http://paleo.amnh.org/fossil/FRC.spec_card?spec_id=3852). Note accompanying the specimens: "Catalog number 3852 Didus sp. 7th Floor. Target door: 1051. Drawer 6. Source Room: Norell Office. Source Door: M1. Contents: Madagascar Pleistocene birds".

The Visitors' Guide to the Geological and Palæontological Collections (Whitfield 1892) mentioned that: "There are also some bones of the *Dodo*" (p.54).

Department of Ornithology
Information partly from Paul Sweet (pers. comm., 19th June 2012; 22nd July 2012; 7th September 2012)

AMNH SKEL 6258 almost complete reconstructed skeleton, composed of bones donated to the museum by James Carson Brevoort (who had obtained them from Nicholas Pike[173]) in 1870, and further bones donated in 1907 (Shuttlesworth 1968; *contra* Kallio (2005), who stated that the skeleton had been purchased in 1905). According to Zimmerman (1918), it was constructed from bones received from the University of Cambridge, in addition to those presented by Pike in 1870 (via James Carson Brevoort), and placed on display.[174] It was previously exhibited alongside the reconstruction of the dodo in the Flying Bird Hall at the AMNH (Edwards 1935) and was placed on exhibit in the Hall of Biodiversity (Floor 1) in June 1998 ("Catalogue of Bones of Birds in the American Museum of Natural History"), where it is currently displayed. The skeleton was acquired in 1907 by the museum in a swap for the skeleton of a Right Whale (Amadon & Gilliard 1964). In the "The Second Annual Report of the American Museum of Natural History. January 1871" the following communication was recorded:

> "BROOKLYN, N. Y., *April* 16, 1870.
> *To the Trustees of the American Museum of Natural History*.
>
> GENTLEMEN:–Having received from Col. Nicholas Pike, U. S. Consul at Mauritius, some bones of that extinct bird, the Dodo, I take pleasure in presenting the most complete set of them to you for the Museum.
>
> Yours respectfully, J. CARSON BREVOORT." (Anon. 1871g, p.23).

In the "Catalogue of Bones of Birds in the American Museum of Natural History", in the entry for 6258, under "Name of Donor" is written: "Rec'd in exchange from University Museum of Zoology Cambridge, England on Nov. 1907." Under 'Remarks' is added: "This skeleton contains some real Dodo bones found in Mauritius swamp. The restored bones are modeled after those of other, more complete skeletons." An article in *The Evening Post: New York* (18th October 1915, p.9) recorded that: "In 1865, and again in 1889, large numbers of the bones of the dodo were found in a marsh in Mauritius, and in 1870 J Carson Brevoort, of this city, presented to the Museum a number of the bones which be had received from Col. Nicholas Pike, the United States Consul at that time at Mauritius. These bones, together with the others received from the University of Cambridge, England, form the nearly completed articulated skeleton which the Museum now possesses." In a letter to Hermon Carey Bumpus,[175] Sidney Frederic Harmer (23rd December 1907; AMNH Gen. Files 651), listed the bones sent: letter paper headed "UNIVERSITY

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[172] Forster-Cooper's Mauritian tortoise remains are catalogued as AMNH FRC 3853.

[173] Nicholas Pike (1818-1905). United States of America Consul in Mauritius 1866-1870. He was on arrived in Port Louis in January 1867 and stayed until 1874.

[174] An article in *The Dansville Express* (1st November 1929) reported: "In 1870 when Colonel Nicholas Pike was American consul in Mauritius, he presented to the American Museum of Natural History of New York City, through Mr. J. Carson Brevoort, a number of bones of the extinct bird that had been excavated on the island. From those bones and some others received from the University of Cambridge, England, a complete articulated skeleton has been constructed and is on exhibition in the American museum" (p.3).

[175] Hermon Carey Bumpus (1862-1943). American zoologist. Director of the AMNH.

MUSEUM OF ZOOLOGY CAMBRIDGE." with the stamp "RECEIVED JAN 16 1908":

Dec. 23, 1907

My dear Dr Bumpus,

Dr Gadow has been good enough to select from our duplicates as complete a set of Dodos' bones as we are able to send you. As soon as the extra postal business of the Christmas season has abated, I shall send the bones, with this letter, to New York, where I trust you will receive them safely. You will understand that as associated skeletons were not found, all we can do is to send you a composite skeleton, made up as well as we can from the material at our own disposal. In one or two cases (for instance the atlas and axis) the fit is not so good as could be wished. The following is a complete list of what I am sending:-

Skull	posterior portion of cranium beak (upper) 1 quadrate R. & L. rami of lower jaw
Atlas	casts of specimens in our possession.
Axis	

Vertebrae 3-14
" 15-17 (fused)
[the 18th is wanting]
Pelvis
5 stenal ribs
Sternum
R. & L. coracoid + scapula
L. humerus
L. radius & ulna
L. metacarpals
R. & L. femur
" " " tibia
" " " fibula
" " " tarsometatarsus
L. metatarsal I.
4 ungual phalanges.

Casts of the head and foot (the latter an associated specimen) of the specimens in the Oxford Universiy Museum. For these you are indebted to Professor G. C. Bourne,

I enclose a memorandum which will tell you all you want to know with regard to the locality of the bones,

With best wishes for the New Year and kind regards

I remain

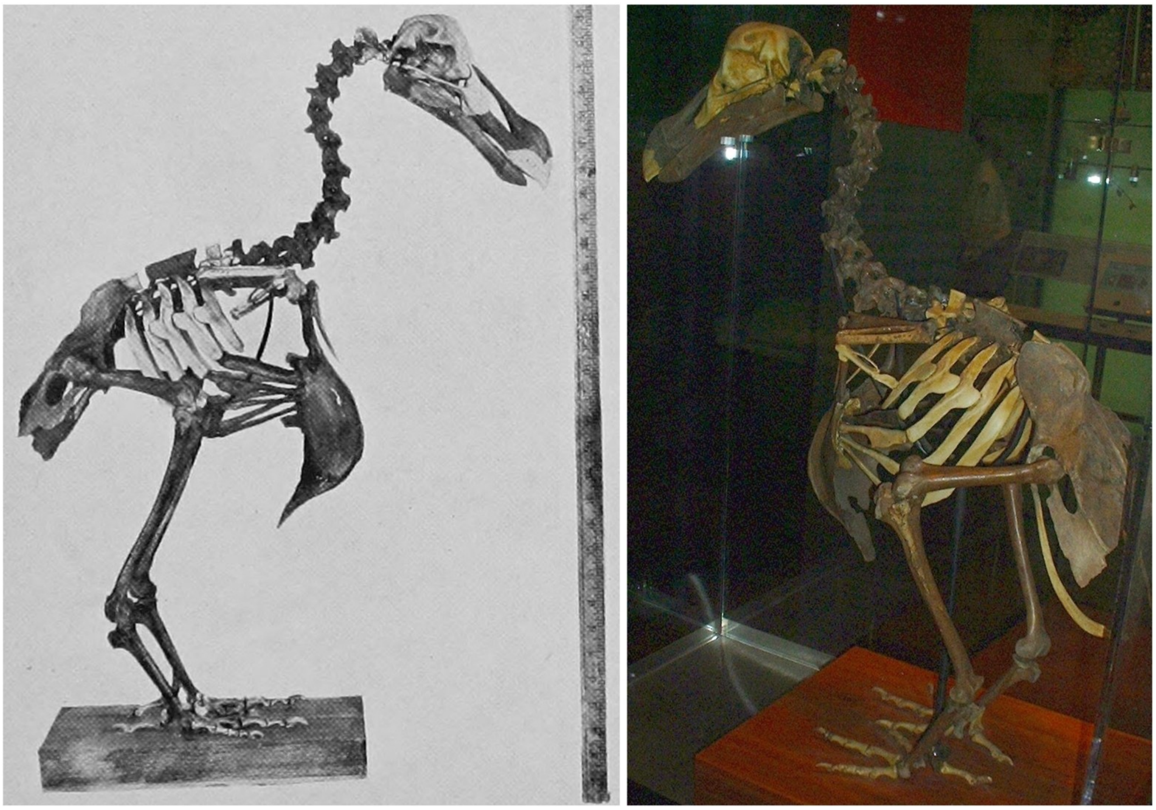
yours sincerely

S. F. Harmer

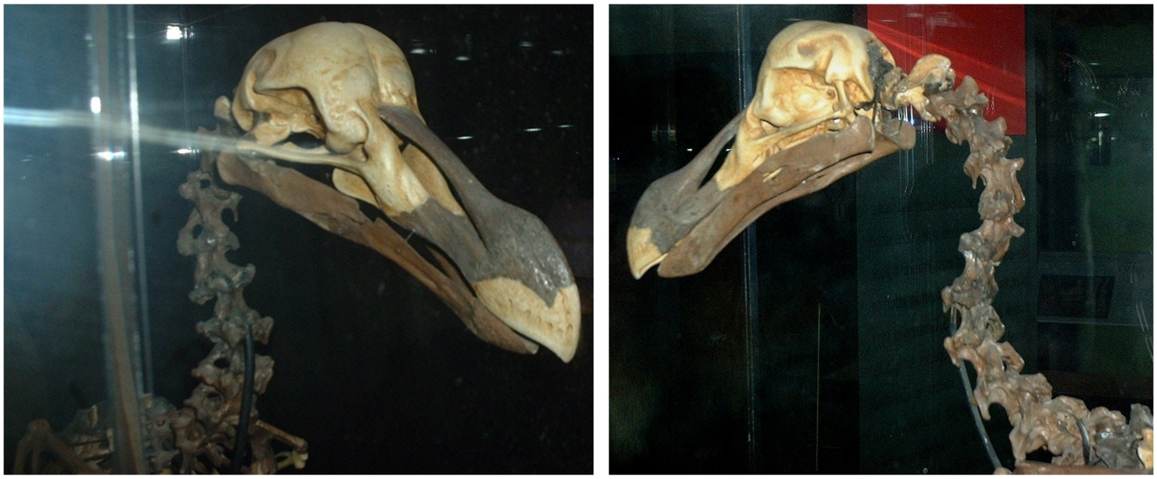
The Director
American Museum of Natural History
Central Park, New York.

Figured: Dixon (1917); Shuttlesworth (1968, p.16); • Actual skeleton and life-size model of the flightless Dodo, first sighted around 1600 on Mauritius, and island in the Indan Ocean (postcard: American Museum of Natural History. Photographs Jackie Beckett. AMNH, New York, 1996). Documentation: http://entheros.amnh.org/db/emuwebamnh/objects/media.php?irn=5064948 [accessed 17 April 2012]

Also catalogued under 6258 are: a cast of the Copenhagen skull, a vertebra, a near complete sternum, a scapula, a coracoid and a tibiotarsus. Hume & Steel (2013) list a sternum as AMNH 8258. This may have been a mistake for AMNH 6258. AMNH 8258 is the holotype of the fish *Clupeolabrus dubius* Nichols 1923.



AMNH SKEL 6258 (*left*: Dixon 1917, *right*: © Jolyon C. Parish, January 2002).



AMNH SKEL 6258 (© Jolyon C. Parish, January 2002).

No catalogue numbers partial mandible ('10133/28'), vertebra ('10131/142'), vertebra ('10131/168'), partial synsacrum ('10129/32'), scapula ('10123/75'), tibiotarsus ("1007 L"), tarsometatarsus ('10115/25')

No catalogue number tip of mandible, vertebra, coracoid, two femora, tibiotarsus, two tarsometatarsi

No catalogue number cast of the Copenhagen skull and mandible (6258) made by Phil Fraley Reproductions, Inc. and donated in 2006 when the Phil Fraley dodo reconstruction was made (Lucas 2007a; Paul Sweet, pers. comm., 7th September 2012)

No catalogue numbers cast of the Tradescant head. Also one copy of this in plastic and six in plaster made by Phil Fraley Reproductions, Inc.

Hume & Steel (2013) list an unregistered left scapulocoracoid, bearing a healed fracture, but do not give any further details. Whether or not this is the same as the uncatalogued coracoid listed above is not known.

The following are transcriptions of documents relating to the AMNH dodo specimens (from http://entheros.amnh.org/db/emuwebamnh/objects/media.php?irn=5064948):

Letter from Reginald E. Vaughan[176] to the Director of the AMNH, 26th May 1952. Mauritius Institute headed notepaper ("THE MAURITIUS INSTITUTE (COMPRISING THE PUBLIC LIBRARY & MUSEUM)" with the notation "IN REPLY PLEASE QUOTE REV/52":

PORT LOUIS, MAURITIUS
26th May, 1952.

To:
The Director,
American Natural History Museum,
Central Park, West,
New York 24,
New York.
U.S.A.

Dear Sir,

A colleague of mine recently returned from the U.S. was enthusiastic about your display of extinct birds. Our little museum is now in the course of re-organisation and we are making a special exhibit of the Dodo and other extinct birds of this region.

If you have no objection it may be possible for us to incorporate some of your ideas in our new display (with, of course due acknowledgement on the show-cards where necessary). Unfortunately we have no guide book or photograph of your museum exhibits to assist us and perhaps you would be able to help us in this respect.

I should also mention that as a result of excavations carried out some years ago we have accumulated a fairly extensive collection of Dodo and Solitaire bones, mostly of the leg. No doubt some museums in the States would like to have sets of these bones for display or osteological study and we should be pleased to exchange them for books or exhibits which we cannot afford with our very restricted financial resources.

Yours sincerely,
[signed]
(R. E. Vaughan)
Director.

Letter from Robert Cushman Murphy to Reginald E. Vaughan, 3rd July 1952:

July 3, 1952

Dr. R.E. Vaughan
The Mauritius Institute
Port Louis, Mauritius

Dear Dr. Vaughan:

---

[176] Reginald E. Vaughan (1895-1987). Botanist.

Director Parr[177] referred to me your letter of May 26 but, as I have been away from New York during most of June, I am just reaching the point of attending to it.

We have on exhibition a fairly good dodo skeleton in which the missing bones have been replaced by skeletal parts skillfully carved from wood. This is in the Sanford Hall of the Biology of Birds in the same case with a restoration of a dodo purchased years ago from Rowland Ward of London. The latter is fairly good but by no means as convincing as a small moa (Euryapteryx) which we have recently constructed for our exhibit of primitive New Zealand bird life.

Our other skeletal remains of dodo and Solitaire are very scanty. Most of them were obtained by an American consul stationed at Mauritius many years ago. We should, of course, be delighted to receive additional bones of both of these birds and to offer publications in exchange. You do not state your wants but under separate cover I am sending you a publication of the library which may help in this respect. Enclosed with this will be one or more guides or descriptions of exhibits.

Whitney Memorial Hall, which contains the moa referred to above, will be completed this year at which time all of the score of exhibits will be illustrated. The account that goes to you refers only to the first few constructed.

I look forward to further word.

Yours sincerely,

RCM:CDS

Letter from Reginald E. Vaughan to Robert Cushman Murphy, 1st August 1952. Mauritius Institute headed notepaper ("THE MAURITIUS INSTITUTE (COMPRISING THE PUBLIC LIBRARY & MUSEUM)" with the notation "IN REPLY PLEASE QUOTE REV/52":

PORT LOUIS, MAURITIUS
1st August, 1952.

Dear Dr.Murphy,

We were very glad to have your letter of 3rd July and note with pleasure that you have sent us some guides and literature about the museum. The American Consul you mention must have been Col. Nicholas Pike who made extensive collections here in the 1870's and I believe you have in your archives a very fine series of his paintings of Mauritius fishes.

We shall be pleased to make up some sets of those Dodo & Solitaire bones of which we have spare material; these will be sent by surface mail and I hope they will reach you safely in due course.

In our library here we have a first edition of your book on Birds of the Southern Ocean of which we make considerable use in attempting to identify our sea birds; we were glad to receive through the British Museum your determination of one of our petrels.

With best thanks for your help and kindest regards,

Sincerely Yours,

[signed]

---

[177] Albert E. Parr, director of the AMNH 1942-1959.

(R.E. Vaughan)
Director.

Mr. RObert Cushman Murphy, Sc.D.
The American Museum of Natural History,
Central Park West at 79th Street,
New York 24, N.Y.

Letter from Robert Cushman Murphy to Reginald E. Vaughan, 11th September 1952:

September 11, 1952

Dr. R.E. Vaughan
The Mauritius Institute
Port Louis, Mauritius

Dear Dr. Vaughan:

I have under way the details of matters discussed in our correspondence during the summer. I have been away from New York more or less, however, and I am now departing for the remainder of September. After the first of October I hope that we may send you an early consignment.

[...]

Yours sincerely,

RCM:CDS

Document dated 1957:

Rec'd by Birds May 27, 1957
Dear Dean,

Well, thanks to John T. Nichol's memory and a little digging by Charlotte, Dorothy and me in the General Files, and vault, I dug up the following data:
The Composite dodo skeleton, your bone catalogue no. 6258, was assembled in University Museum of Zoology, Cambridge, England, and received from them in Nov. 1907. In a letter from S. F. Harmer, Cambridge, to Dr. Bumpus, dated Dec, 23, 1907, all the bones are listed - which are real, and which restored from other specimens. This is in File 651, Genn Files. You also received from them at the same time, a cast of the head and foot (associated) of the dodo specimen at Oxford Univ. (courtesy of someone there, I think named Bourne.)[178]
The dodo skeleton was a direct trade for the skeleton of a N. Atlantic right whale calf, as Mr. J. T. Nichols remembered - was called the "Balaena & Dodo trade".

The reconstruction of the dodo was prepared in the taxidermy studios of Rowland Ward in London, and presented to the museum by Mr. Walter Winans, of Kent, England, in Oct, 1915. = 1905? COB Valuation $200. It is described by Dorothy Edwards in an article "The dodo of Mauritius", Natural History, 1935, vol. 35, pp. 248-249.

This is all the data I need, and I thought you might like to add it to your records over there.

Yours,
[signed Rachel]

---

[178] William Richmond Postle Bourne. Ornithologist at the University of Oxford.

Handwritten label:

J. C. Brevoort.
Sternum of Didus ineptus. Linn.
(Dodo).
Quaternary. Mauritius.

Typewritten label:

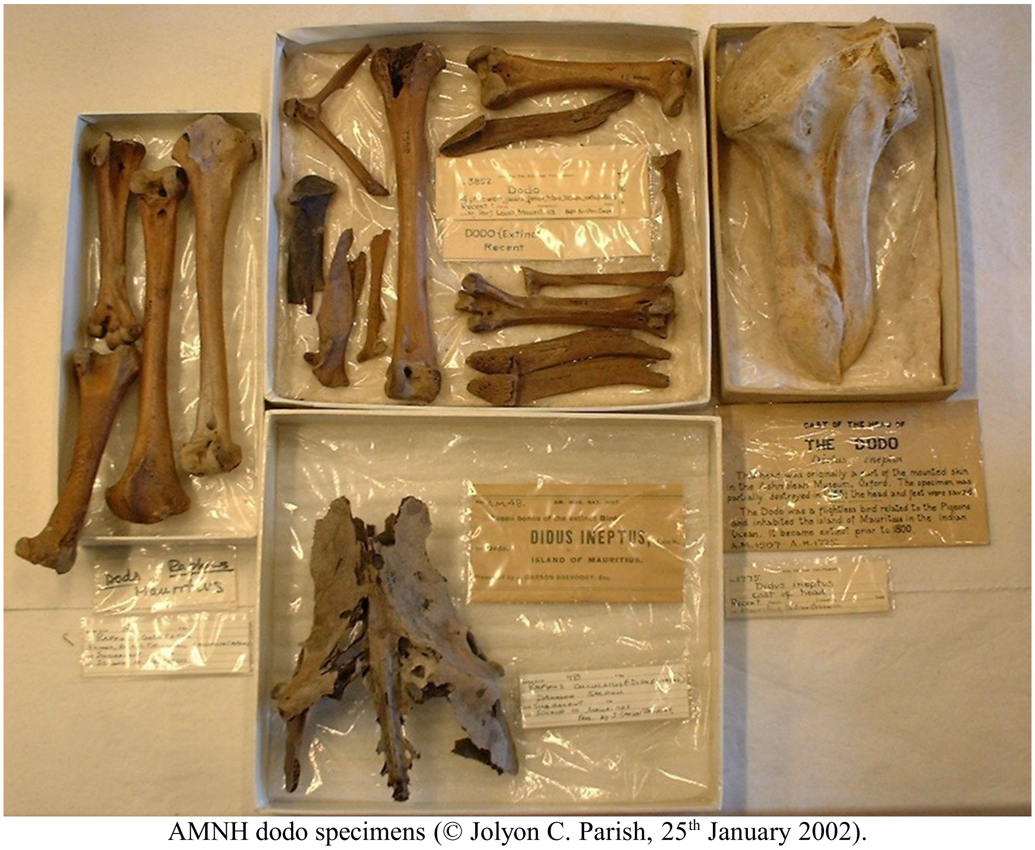
Didus ineptus AMNH. 6258 Dodo

Mounted skeleton (on exhibition in Sanford Hall) and odd bones such as sternum, leg, mandible, vertebrae, and several casts (7 examples) received in ex change from the University Museum of Zoology, Cambridge, England, November 1907 for a skeleton of a North Atlantic White Whale calf.

There were "some bones of the *Dodo*" on display in the Geological Hall in 1885 (Whitfield 1885, p.54) and Allen (1888) noted that a "part of a skeleton may be seen in Case T of the Geological Hall" (p.33).

Pindar *et al*. (1917) mentioned the dodo "of which a restoration and skeleton may be seen" in the AMNH (p.53). They were exhibited in the South Central Wing (Birds of the World).

AMNH dodo bones: figured: Lucas (2007a, p.86).



AMNH dodo specimens (© Jolyon C. Parish, 25th January 2002).

New York State Museum of Natural History

New York State Museum, 3140 CEC, Albany, New York 12230, USA

Raphus cucullatus

Charles F. Wadsworth,[179] of Buffalo, donated a series of 117 casts of fossil specimens to the State Cabinet of Natural History, New York, in 1864. These were housed in the Wadsworth Gallery of Casts of Fossil Animals and included a cast of the Tradescant head (no.66 of Ward 1865; figured: Ward 1865, fig.63) and a cast of the BM foot (no.71 of Ward 1865). See Ward Casts of the Tradescant Head (below).

The "Eighteenth Annual Report of the Regents of the University of the State of New-York, on the Condition of the State Cabinet of Natural History" (Pruyn 1865) listed the following in The Wadsworth Gallery:

> No.66. *Dodo ineptus*.[63] Head. This specimen is of the highest interest; belonging, as it does to a species which has become extinct during the present or historical period. Pleistocene: Island of Mauritius. (p.43).
>
> No. 71. *Dodo ineptus*. Foot; skin still covering. Pleistocene: Isle of Mauritius. (p.44).

The Twenty-Seventh Annual Report on the New York State Museum of Natural History mentioned the acquisition of "Casts of Dodo bones" in 1873 (Anon. 1875c, p.26). The preceding entry lists casts of skulls of gorilla, orang utan and chimpanzee, donated in an exchange by Thomas Moore of the Derby Free Museum of Liverpool.

However, there are no records of dodo material or casts in the ornithology and vertebrate palaeontology catalogues (Jeremy Kirchman, pers. comm., 6th September 2012).

Academy of Natural Sciences, Philadelphia

Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103, USA

Raphus cucullatus

There is mention of the donation of a "Cast of the metatarsal bone of the Dodo. From Mr. Edward Doubleday, of London" to the museum of the Academy of Natural Sciences of Philadelphia on 17th October 1848 (Anon. 1850, p.110). This may have been Edward (or Edwin: Rookmaaker 2010) Doubleday (1811-1849), an English entomologist, who lived in London and worked at the BM. Unfortunately this cast is no longer in the Academy (Nate Rice, pers. comm., 12th June 2008).

United States National Museum, Washington, D.C.

(Smithsonian Institution; National Museum of Natural History [NMNH])

True (1890) reported in his report on the Department for Comparative Anatomy for the year ending on 30th June 1888 that "Some bones of the extinct Dodo (*Didus ineptus*), and Solitaire (*Pezophaps solitarius*), were received from the Cambridge University Museum, England" (p.181).

Paleontology Department

Department of Paleobiology, National Museum of Natural History, 10th Street and Constitution Avenue, NW, Washington, DC 20560-0121, USA

Raphus cucullatus

V 16856 (accession number 45525) mounted skeleton ("*Raphus ineptus*") purchased in 1904 from French dealers for exhibition in the Lewis & Clark Centennial and American Pacific Exposition and Oriental Fair, held at Portland, Oregon, from 1st June to 15th October 1905 (True 1905; Hardt 1905). It was recorded in *The Daily News* (evening), 6th March 1905, that "Curators of the national museum at Washington, D. C., have obtained for exhibition at the Lewis and Clark exposition a perfect skeleton of the dodo" (p.2). It was exhibited in the section of the Department of Biology, in the east end of the space allotted to the Smithsonian (Hardt 1905). Rathburn (1906) listed it as: "Deyrolle, les Fils d'Emile, Paris, France: Skeleton of a dodo, *Didus ineptus*, from the Marais aux Songes, Mauritius (45525: purchase)" (p.64). It was housed in the east end of the Smithsonian. At the time it lacked a cranium, ribs and several other bones, and the pelvis was damaged caudally. Some of the pedal phalanges were restored. The mounted height of the skeleton was 66cm (*ibid*.). The skeleton was to "be restored and included in the exhibit of the Smithsonian Institution and National Museum at the Lewis and Clark Exposition, Portland, Oregon, 1905" (*ibid*., p.517). The skeleton was exhibited in the Osteology Hall of the Smithsonian Institution until World War II when it was disassembled and put into storage. Having been previously assigned to the Bird Division (catalogue no.19874), it was trasferred to Paleobiology (Department of Geology) in 1944. According to Ley (1957a), the Smithsonian Institution skeleton was assembled by Norman H. Boss.[180]

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[179] Charles F. Wadsworth, Curator of Mineralogy, Buffalo Society of Natural Sciences, New York.

It was noted in 1944 that in the vertebrate paleontology section of the Department of Geology: "The outstanding exhibition specimen received was a composite skeleton of the large flightless pigeon *Dodo ineptus*, from Mauritius, which came by transfer from the division of birds" (Anon. 1945, p.53). "For the first time in the division's history the extinct birds are brought together as a unit, filling one alcove. The specimens have been newly renovated, and, with the added attraction of a dodo skeleton transferred from the division of birds, they present an assemblage that should prove interesting to our visitors" (*ibid*., p.55). After the war it was reassembled and found to consist of bones from several individuals and some of plaster. It was restored in early 1946, incorporating bones and guttapercha (Anon. 1946), with reference to measurements from European skeletons and then placed on exhibition (Gordon 1956; Edson 1946). An article in the *Utica Observer-Dispatch* (31st January 1946, p.12-A) reads:

> It's Half Bones and Half Imagination
> Scientists Reconstruct the Dodo . . the Real McCoy This Time
> By ARTHUR EDSON
>
> Washington–(AP)–A newly constructed dodo roosts in the Smithsonian Institution today.
>
> And Smithsonian scientists [...] say they reckon it's the most complete dodo specimen in America.
>
> It's half real dodo (bones, that is) and half imagination helped along by careful research into descriptions written by early explorers.
>
> The bird was put together once before, some years ago, but the scientists found later that it wasn't what the dodo really looked like. So they tore the specimen down and began all over again. They think they've got it right this time.

It was on display in 1984, but was returned from exhibition '11/1/99' and put in storage again. It has the following original elements: most of rostrum (corpus ossis premaxillare), mandible, axis, cervical vertebrae 3-13, 14th vertebra (neural spine restored), notarium (dorsal part of crista dorsalis restored), scapulae (distal end of right scapula restored), coracoids, sternum, ulnae, radii, most of pelvis (distal extremity restored), femora, tibiotarsi, fibulae, tarsometatarsi. The restored elements are as follows: most of skull, caudal vertebrae, ribs, humeri, carpometacarpi and alar phalanges, pubes, pedal phalanges. Figured: True (1905, pl.lxxvi [reproduced: Parish (2013, fig.5.48)[181]]); Edson (1946, p.12-A); Anon. (1955, p.120); Keynes (1956, p.90) [Herbert Friedmann, Curator of Birds shown with the USNM skeleton. Photographer: Bates Littlehales]; Ley (1957a, fig.4).

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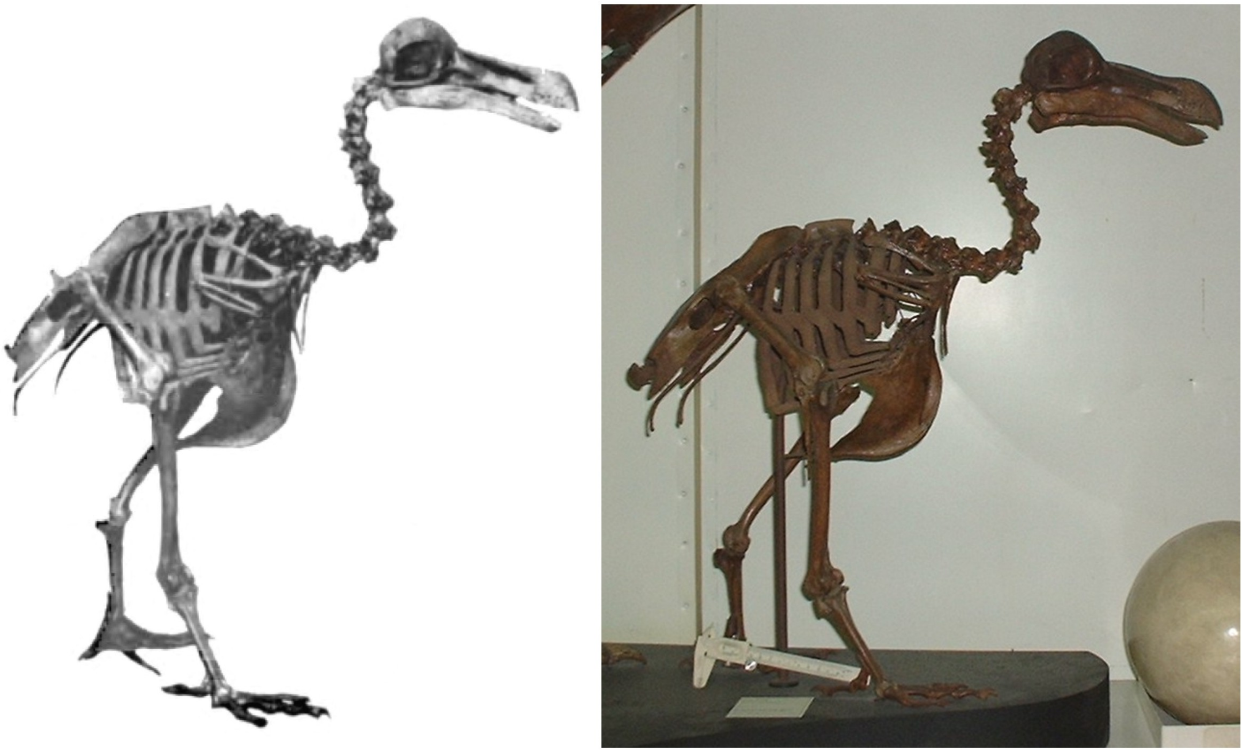
[180] Norman Holland Boss (*fl*. 1930s-1940s). Assisstant preparator and later Chief Preparator at the USNM.

[181] 'UMZC' should read 'USNM'.



USNM V 16856 (*left*: Anon. 1955, pl.120; *right*: © Jolyon C. Parish, 14th May 2001).

V 22554 (original no. 10120) right femur (some damage to distal condyles and caudal part of proximal end)
V 22555 (original no. 10121) left femur
V 22556 (original no. 10115/155) left tarsometatarsus
V 22557 (original no. 10116/10) right tarsometatarsus
V 22558 (original no. 10117L) left tibiotarsus (damaged proximocranially; pale brown / cream with dark grey mottling)
V 22559 (original no. 10117R) right tibiotarsus
V 22560 (original no. 10129/8) fragmentary pelvis (damaged cranially and caudally)
V 22561 (original no. 10122/17) proximal end of left mandibular ramus
V 22562 (original no. 10135/6) proximal end of right mandibular ramus
V 22563 (original no. 10132/7) mandibular symphysis and distal ~half of left ramus
V 22564 (original no. 10133/23) mandibular symphysis and distal ~half of right ramus
V 22565 (original no. 10118/11) right scapula (lacks distal extremity).
V 22566 (original no. 10119/21) left scapula (lacks distal extremity).
[No catalogue number] seven (four left, three right) portions of the medial part of the mandible
[No catalogue number] fourteen cervical vertebrae on a string, bearing numbers in black ink of the format '10131/': 10131/1 (6th or 7th), 10131/10 (?10th), 10131/25 (?13th), 10131/53 (?5th), 10131/59 (?6th or 7th), 10131/62 (?7th or 8th), 10131/71 (?5th), 10131/79, 10131/144 (?7th or 8th), 10131/155 (?4th), 10131/174 (?3rd), 10131/198 (?10th), 10131/211 (?7th or 8th), 10131/216 (?11th). Attached label reads: "Dodo (Raphus cucullatus) Odd vertebrae (14) No. 10131".
Note: nos. V 22554-22566 have the accession number 232091 and are labelled as Quaternary. They were purchased from Richard Louis Casanova[182] (Paleontological Research Laboratory). Donor:

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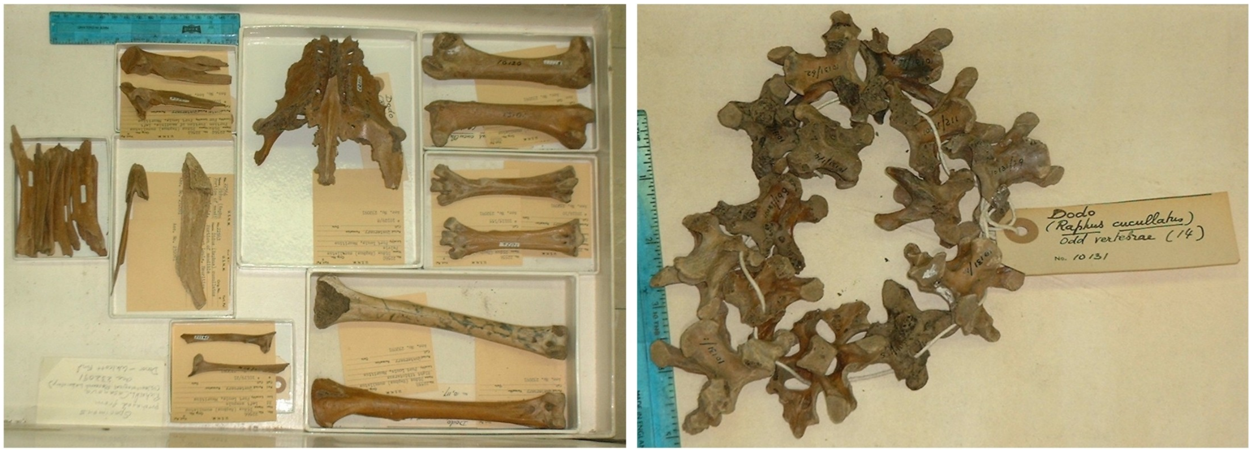
[182] Richard Louis Casanova (1918-1994) American palaeontologist. Worked with Ward's Natural Science Establishment of Rochester, New York 1948-1949. Director of the Paleontological Research Laboratory, Statesville 1950-1961.

Walcott Fund. Label reads: “Port Louis, Mauritius from British Museum.” The United States National Museum Annual Report for the Year Ended June 30, 1961 lists, under the Donors to the National Collections: Walcott Fund, Smithsonian Institution: “34 fossil dodo bones (232091)” (Kellogg & Carmichael 1961, p.183). As the numbers on the bones are similar to Mauritius Institute numbers (see above), it is possible that the NHMUK acquired the bones from the Mauritius Institute and subsequently that they came into the possession of Casanova.



USNM dodo bones. *Right*: cervical vertebrae with the number ‘10131’ (© Jolyon C. Parish, 14th May 2001).

Pezophaps solitaria

V 7122 bones (?♂): left femur, right femur, left tibiotarsus, right tibiotarsus, left tarsometatarsus, right tarsometatarsus. Collected by Nicholas Pike in 1872. Label reads: “This is dodo, not Cnemiornis- P. Houde. These are solitaire bones- Pezophaps solitaria A. Janoo.” P. Houde is Peter Houde, palaeornithologist, and A. Janoo is Anwar Janoo. [NMNH Vertebrate Paleontology database] [bones bear ‘13456’ in ink and ‘7122’ written in white in a darker oblong] [in box] See also Ornithology Department: 13456.

Ornithology Department (Division of Birds) MRC NHB116

Department of Systematic Biology, Division of Birds, MRC-116, National Museum of Natural History, 10th and Constitution, NW, Washington DC 20560-0116, USA

Raphus cucullatus

11303 pelvis (pale brown with dark grey mottling; some damage cranially (medially and right side), damaged caudally). Collected by James Carson Brevoort.

11304 left and right tibiotarsi (right one damaged proximocranially), right and left tarsometatarsi. Collected by C. J. Brevoort. 196.

16954 cast of the Tradescant foot skeleton (digit IV complete, digits I-III lack unguals). Oxford University. Mentioned by True (1905).

16955 cast of the Tradescant head (made prior to dissection). Oxford University. Mentioned by True (1905).

16957 cast of the Copenhagen skull. Received from the Royal Zoological Museum, Copenhagen, through Christian Frederik Lütken.[183] Donated in 1884. “Lutken, Chr. 14500. Cast of the cranium of dodo, in the possession of the Zoological Museum of the University of Copenhagen” (Anon. 1885c, p.407). Mentioned by True (1905). Also two plastic casts made from plaster cast, September 1968.

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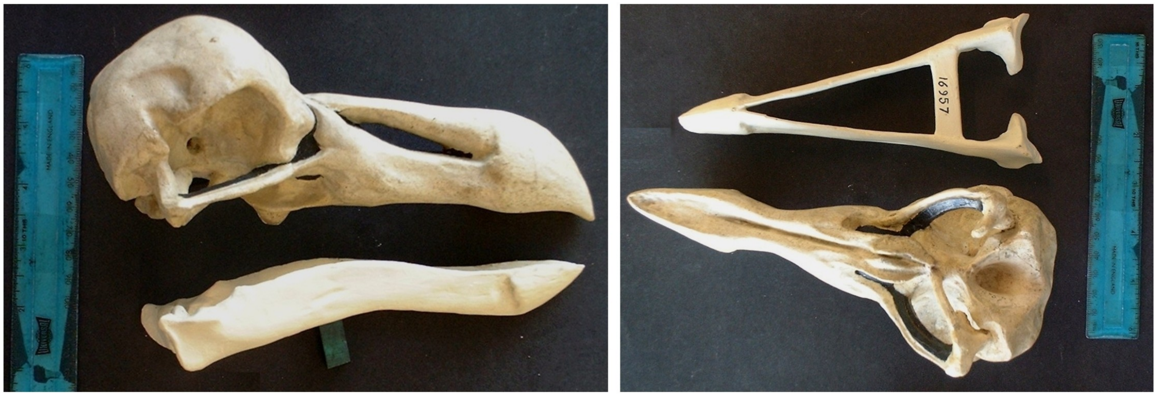
[183] Christian Frederik Lütken (1827-1901). Danish naturalist. Assistant to Japetus Steenstrup at the Museum of Zoology, Copenhagen. Worked with Johannes Theodor Reinhardt. Became a member of the ZSL in 1879.



Cast of the Copenhagen skull (USNM 16957) (© Jolyon C. Parish, 14th May 2001).

18239 pelvis (dark brown; damaged caudally, some damage proximally, synsacrum complete).

18240 mandibular symphysis and distal ~half of left ramus joined to proximal ~half of left ramus (darker brown), distal end of right ramus (darker brown). Label: "E. Mus. Cantabr." [Note: the NMNH Ornithology Database only lists "ribs (2)", although this could be a mistake for the two mandibular fragments, as no ribs were found in the collection (pers. obs.)]

18241 fragmentary sternum (median portion with caudal end fairly intact, damaged laterally and cranially, some damage to proximal part of carina).

18242 left and right femora (Label: "E. Mus. Cantabr.").

18243 right tibiotarsus (pale brown with dark grey mottling), left tibiotarsus (label: "E. Mus. Cantabr."). Figured: Lucas (1891, pl.CI, fig.2).

18244 left and right tarsometatarsi. Label: "E. Mus. Cantabr."

Note: Nos. 18239-18244 were collected by J. W. Clarke (NMNH Ornithology Database).[184] Nos. 18239, 18240, 18243 and 18244 are in the same box (*ibid*.).

Pezophaps solitaria

13456 cranium (♀), right coracoid (♂), left coracoid (♂), pair of humeri (♂; right one lacks distal end), pelvis (?♂; damaged cranially on right side, and caudally. Collected by Nicholas Pike. Date: 1872), three fragments of ?ilium, left fibula, right tarsometatarsus (♀; "18247c 1871", "E. Mus. Cantabr."), left tarsometatarsus with first metatarsal attached with wire, (♂; "18241c 1871"), pair of first metatarsals (?♂), pedal ungual ("L II 3"). Collector: Edward Newton. Date collected: 1872. [NMNH Ornithology database] See also Vertebrate Paleontology Department: 7122. An accompanying label reads: Loan – Pezophaps (both). Borrower: Nick Longrich. Institution: SI. Loaner: SI. Date of loan: Jun 9. Catalog No. #13456 – misc. bones – the other one – misc. bones.

No. 18241c see no. 13456.

18245 sternum (damaged caudally and caudolaterally) plus small bone fragment. "E. Mus. Cantabr.". 1871

18246a left femur (♂). "E. Mus. Cantabr." 1871

18246b left tibiotarsus (♂). "E. Mus. Cantabr." 1871. Figured: Lucas (1891, pl.CI, fig.1).

18246c' left fibula (?♂). "E. Mus. Cantabr.". 1866

18247 left fibula (?♀). 1866.

18247a right femur (♀). "E. Mus. Cantabr." 1866.

18247b right tibiotarsus (♀). "E. Mus. Cantabr." 1871.

18247c see no. 13456

18248 coracoids: right side with scapula attached by wire (♂; 1871), right (♀; "E. Mus. Cantabr."), left (♂; "E. Mus. Cantabr."; 1871), left (♀; "E. Mus. Cantabr."; 1871). Collector: J. Clarke.

18249 cervical vertebrae: 11th (?♀), 12th (♀), 13th (♀). "E. Mus. Cantabr."

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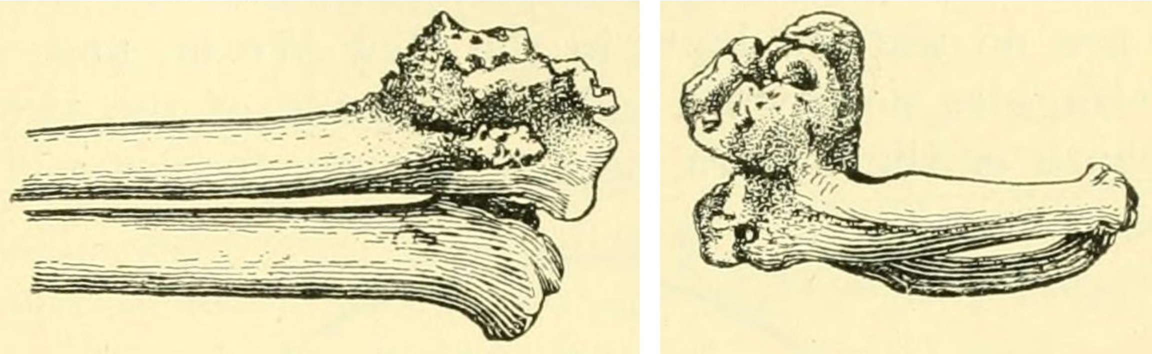
[184] This probably refers to John Willis Clark, Superintendent of the Museum of Zoology and Comparative Anatomy at the University of Cambridge 1866-1891. Clark did not visit the Mascarenes, so this mention presumably refers to his involvement in the acquisition of the bones by the Smithsonian.

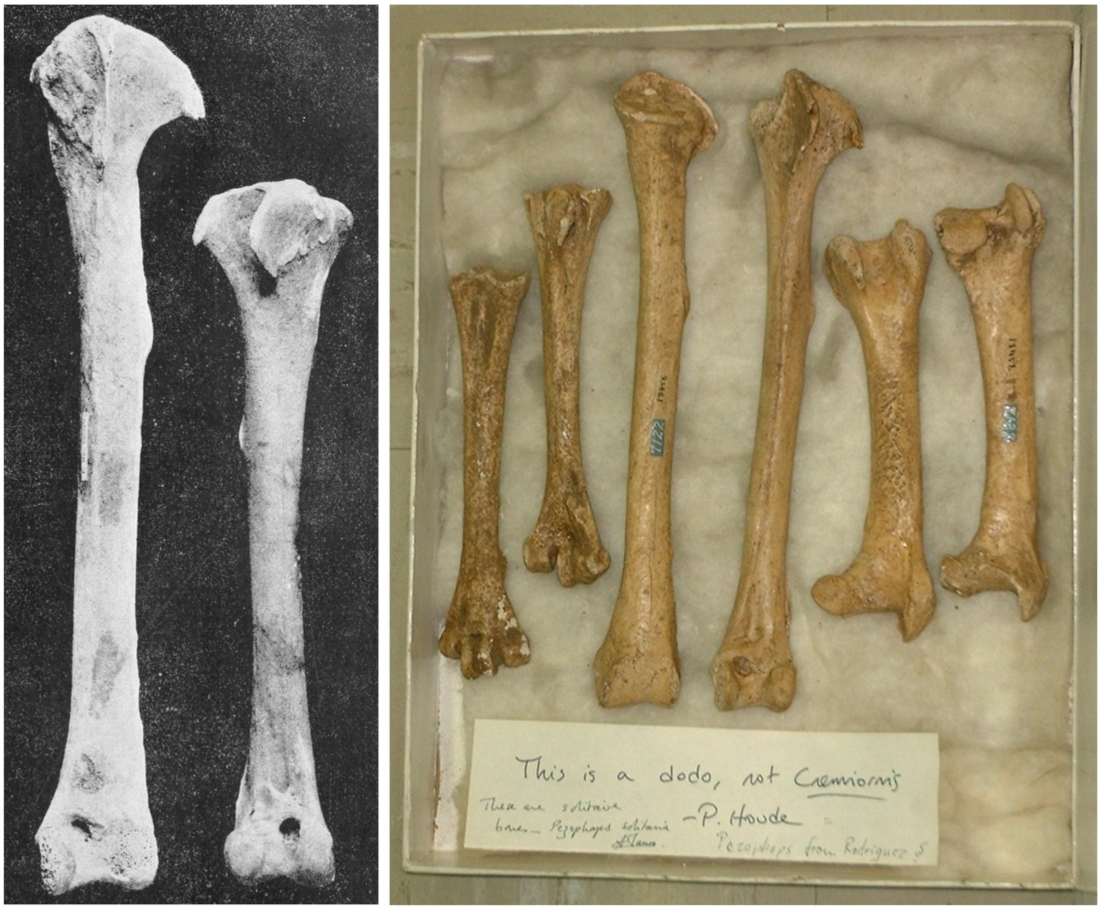
18250 cervical vertebrae: 12th (♂; "E. Mus. Cantabr."), 18th (♂)
18251 right humerus with ulna and radius attached with wire (♂; radius shows exostosis at distal end). 1871. Figured: Lucas (1895, fig.1 [radius and carpometacarpus])



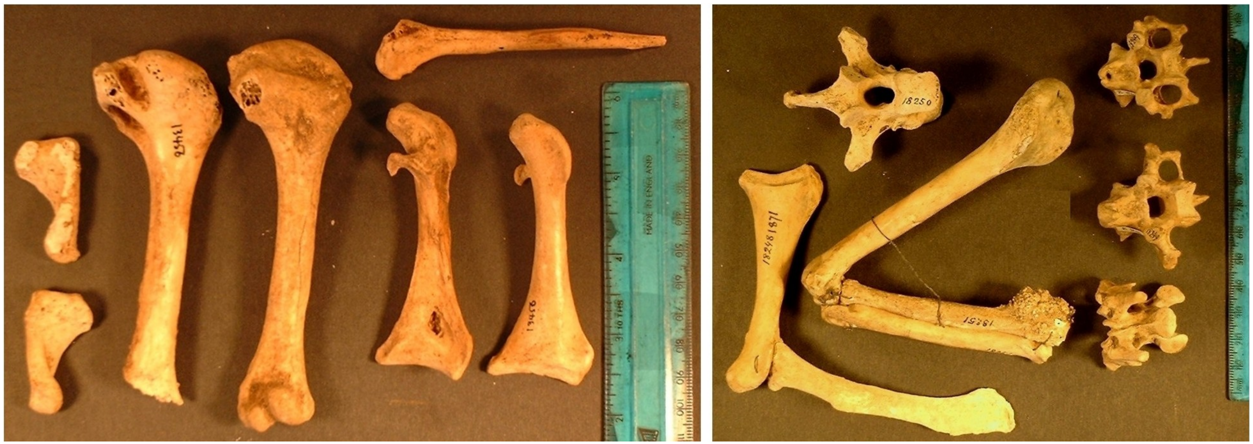
USNM 18251: right radius, ulna and carpometacarpus (Lucas 1895, fig.1).

No. 18261 right carpometacarpus (♂; with large exostosis). 1871

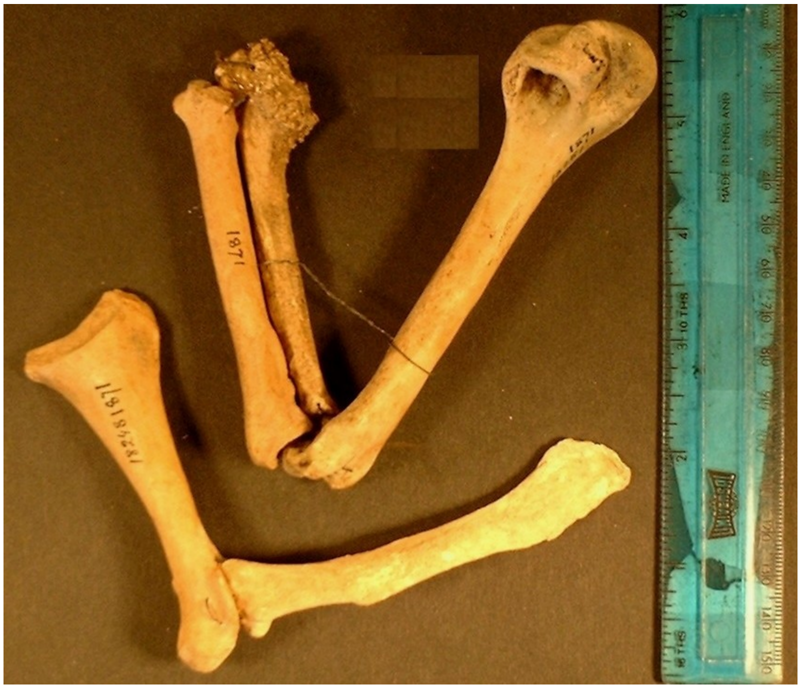
Note: nos. 18245-18251 were collected by J. W. Clarke (NMNH Ornithology Database) – see footnote 184. The NMNH Ornithology Database lists for 18245-18251: "sternum, miscellaneous bones".


This is a dodo, not Cnemiornis
-P. Houde
These are solitaire bones – Pezophaps solitaria
Pezophaps from Rodriguez

Left: tibiotarsi: *left*: *Pezophaps* left tibiotarsus (USNM 18246b: Lucas 1891, pl.CI, fig.1), *right*: *Raphus* right tibiotarsus (USNM 18243: Lucas 1891, pl.CI, fig.2). *Right*: USNM V 7122 (© Jolyon C. Parish, 14th May 2001).



USNM *Pezophaps* bones (© Jolyon C. Parish, 14th May 2001).



USNM *Pezophaps* bones (© Jolyon C. Parish, 14th May 2001).

The Annual Report of the Board of Regents of the Smithsonian Institution for the year 1870 lists among the additions to the collections: "*Brevoort, J. Carson*. – Bones of the dodo, from Mauritius" (Anon. 1871c, p.47). Henshaw (1910) noted that: "The Museum of Zoölogy of the University of Cambridge (England), through Dr. Hans Gadow, has been kind enough to send in exchange [...] an especially valuable lot of bones of the extinct Solitaire, *Pezophaps solitarius*, collected in Rodriguez by Jenner in 1871. The skeleton as mounted for exhibition by Mr. Nelson[185] is shown on Plate 3 [see figure below]" (pp.6-7).

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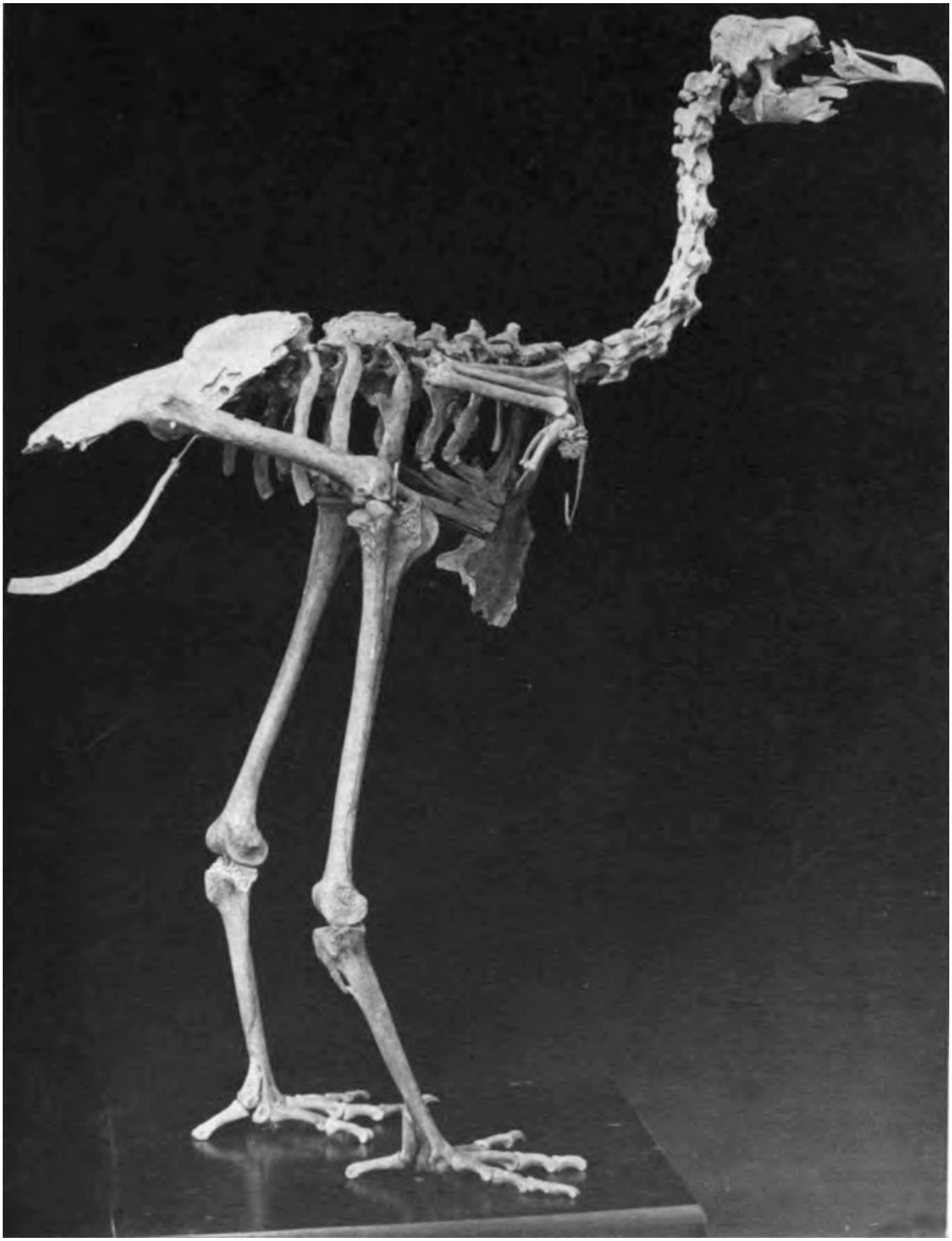
[185] Probably George Nelson, skeleton preparator at MCZ.



USNM solitaire skeleton (Henshaw 1910, pl.3. Heliotype Co., Boston).

University of Michigan Museum of Zoology

University of Michigan Museum of Zoology, 1109 Geddes Avenue, Ann Arbor, Michigan 48109-1079, USA. Bird Division.

Information from Janet Hinshaw (pers. comm., 9th January 2001; 17th July 2012; 30th July 2012). Numbers written on the bones given in parentheses.

Raphus cucullatus

UMMZ 209033 mandibular symphysis and most of right ramus (10133/21), proximal end of left ramus (10122/8), proximal end of right ramus (10135/4), middle portion of left ramus (no number), middle portion of right ramus (no number),[186] three vertebrae (10131/25, 10131/83, 10131/108), most of synsacrum (10129/13), pair of broken scapulae, left femur, left tibiotarsus, two left tarsometatarsi (10115/69, 10115/137)

Pezophaps solitaria

UMMZ 209034 left femur (10149/4), right tibiotarsus (10147/11) and right tarsometatarsus (10144/7)

UMMZ 209033 and 209034 were obtained from the Mauritius Museum by Robert Winthrop Storer in autumn 1964 during a trip to Madagascar and Mauritius. Janet Hinshaw, Bird Division Collection Manager, recalled: “I seem to remember him saying they let him pick out a selection from boxes of bones they had” (pers. comm., 4th November 2010).

Field Museum of Natural History, Chicago

The Field Museum of Natural History, 1400 S. Lake Shore Dr, Chicago, Illinois 60605-2496, USA. Bird Division.

Raphus cucullatus

FMNH 337977 left tarsometatarsus. Transferred from Glen E. Woolfenden,[187] Tampa, Florida.

No other dodo material, either in the Bird Division or the Paleontology department (David Willard, pers. comm., 2nd July 2001).

University of Kansas Natural History Museum

University of Kansas Natural History Museum & Biodiversity Research Center, 1345 Jayhawk Boulelvard, Lawrence, Kansas 66045-7561, USA. Paleontology Collection.

Information from Mark Robbins (pers. comm., 29th January 2008).

Raphus cucullatus

KU 73207 synsacrum, sternum, humerus, femur, tibiotarsus, tarsometatarsus

Larry Martin obtained the specimens in an exchange with the British Museum (Mark Robbins, pers. comm., 14th February 2008). “Based on catalogued specimens on both sides of those numbers, it appears that they were obtained around 1978” (Mark Robbins, pers. comm., 7th February 2008). The dodo bones, in the Ornithology collection, were part of a panel mount that was disassembled by David Alan Burnham (Dave Burnham, pers. comm., 29th May 2008).

Pezophaps solitaria

KU 73208 skull, tip of rostrum, quadrates, synsacrum, coracoid, scapula, sternum, humerus, radius, two carpometacarpi, femur, tibiotarsus, fibula, tarsometatarsus

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[186] The two proximal mandible fragments might be part of the same mandible as the two middle portions of ramus (Janet Hinshaw, pers. comm., 30th July 2012).

[187] Glen E. Woolfenden (1930-2007), Professor at the University of South Florida.

University of California, Berkeley, California

Raphus cucullatus

According to the Proceedings Volume of The Geological Society of America for 1966, an excursion by Ruben Arthur Stirton[188] "from Australia to South Africa was forced down on Mauritius in the Indian Ocean, and a lecture series was knocked off schedule before it started. Resourceful, Stirton turned mishap to advantage by acquiring a skeleton of the extinct Dodo, though not without further misadventure in the form of its temporary loss en route home through hurried misplacement by superstitious and frightened native customs inspectors" (p.395). However, there are no dodo specimens in the University of California Museum of Paleontology or the Museum of Vertebrate Zoology collections (Pat Holroyd, pers. comm., 13th March 2008; Carla Cicero, pers. comm., 14th March 2008). Furthermore, there are no mentions of Stirton in the *séances* of the RSASM for 1953-1966 (Anthony Cheke, pers. comm., 5th February 2013).

National Museum of Guyana

Guyana National Museum, Company Path, Georgetown, Guyana

Raphus cucullatus

A set of "Casts of Dodo Bones" were sent to "Dr. W. H. Campbell, Museum, George Town, Demerara" from the Liverpool Museum (Anon. 1867c, p.15). "W. H. Campbell" was most probably William Hunter Campbell (1814-1883), of Georgetown, Demerara. Campbell was born in Edinburgh and died in London. He was Secretary of The Royal Agricultural and Commercial Society of British Guiana, an offshoot of which, the Natural History Society, had a museum that opened in around 1860.

Quelch (1887), in describing the British Guiana Museum noted: "In the small hand-cases [...] opposite to the inlaid table, are seen [...] casts of the bones of the remarkable extinct bird, the Dodo. This bird, of which a picture is given on the chart of birds on the landing [...] is usually referred to the group of the Pigeons, its nearest of kin being apparently the Tooth-billed Pigeon or Little Dodo" (p.205).

Today the museum possesses only a plaster of Paris cast, which is on display. The specimens mentioned above were probably destroyed in a fire at the museum in 1945 (Elford Liverpool, pers. comm., 18th January 2013).

See also: World Museum, Liverpool.

Museo Nacional de Chile

Museo Nacional de Historia Natural, Parque Quinta Normal, Santiago, Chile

Raphus cucullatus

In the "Illustrated and Descriptive Catalogue of the Collection of Animal Biology Preserved at the Museo Nacional de Historia Natural", Quijada (1920) listed: "*k*. Model in plaster of the head of the Dronte (*Didus ineptus*). Floodplain of Mauritius" (p.142).[189]

Museum, Buenos Ayres – see World Museum, Liverpool.

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[188] Ruben Arthur Stirton (1901-1966), University of California, Berkeley (Museum of Paleontology).

[189] "*k*. Modelo en yeso de la cabeza del Dronte (*Didus ineptas*). Del terreno de aluvión de la Isla Mauricio" (Quijada 1920, p.142).

Zoological Institute of the Russian of Academy of Sciences, St. Petersburg

Zoological Institute of the Russian Academy of Sciences, Universitetskaya embankment 1, Saint Petersburg, 199034, Russia. Department of Birds.

Raphus cucullatus

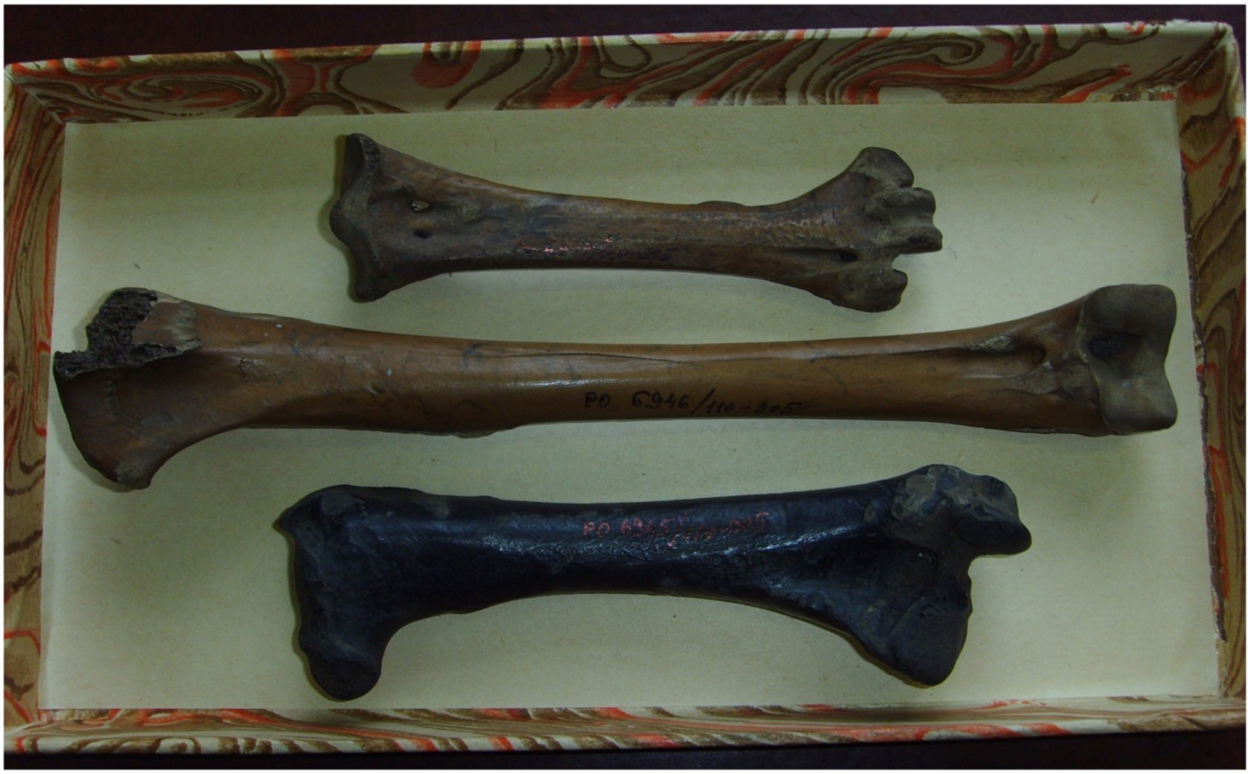
Collection numbers from Vladimir Loskot (pers. comm., 22nd March 2012).

ZIN PO 7373 cast of the Tradescant head, given by Iosif Hamel to the Museum of the Imperial Academy of Sciences (Brandt 1848a). Strickland wrote to Brandt (9th June 1846; F-200) that he would have sent a cast of the head of the dodo if he had not been informed that Hamel had already obtained one for the museum at St. Petersburg (Rookmaaker 2010).

ZIN PO 7374 cast of the BM foot (donated by Iosif Hamel: Hamel 1847a)

Three bones, all from different individuals, received from the UMZC in 1905 (Vladimir Loskot, pers. comm., 13th March 2008):

ZISP ¹ PO 6945/110-905 right femur
ZISP ¹ PO 6946/110-905 right tibiotarsus
ZISP ¹ PO 6947/110-905 right tarsometatarsus



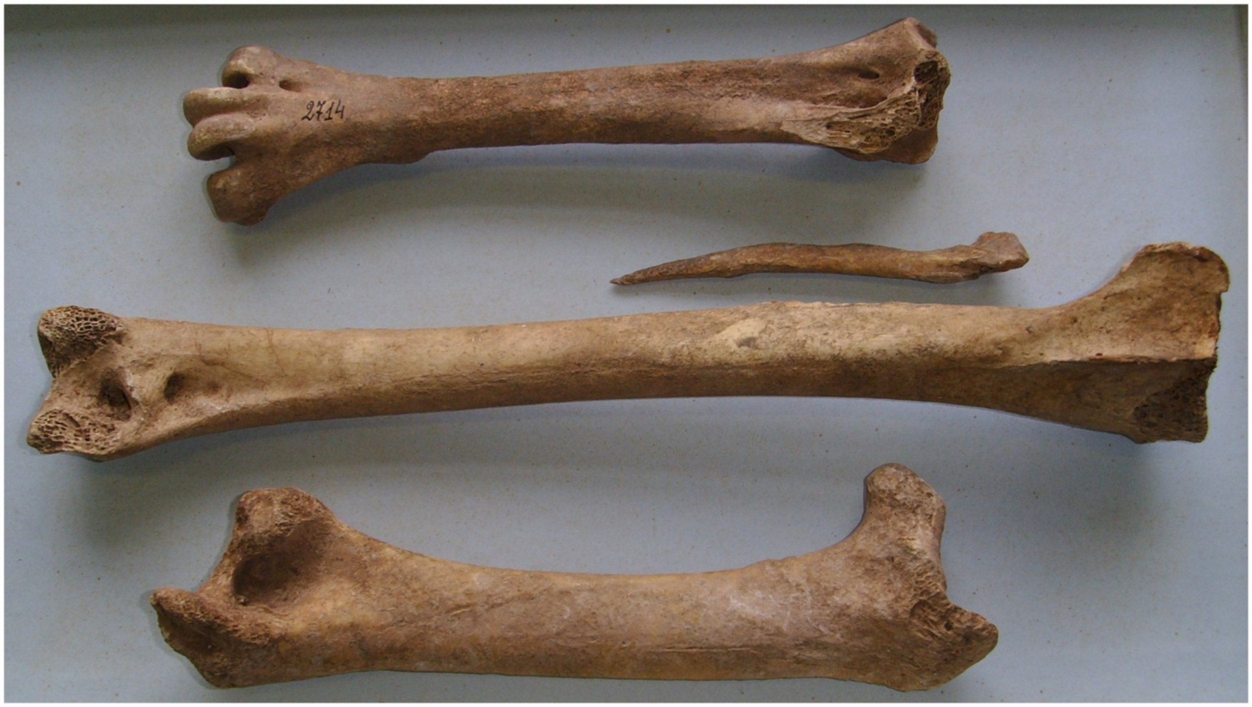
ZISP dodo bones (© Zoological Institute of the Russian of Academy of Sciences, St. Petersburg).

The accompanying label, in the handwriting of Alfred Newton (excepting the catalogue number), reads:

110-1905 University Museum of Zoology, CAMBRIDGE
5 July , 1905.
Didus ineptus 1 Femur
1 Tibia
1 Tarsometatarsus
Ex insula Mauritii

Hamel submitted to the Kaiserlichen Akademie der Wissenschaften (Imperial Academy of Sciences), St. Petersburg, a plaster cast of the Tradescant head, a cast of the BM foot, both brought from England, and several photographic images of the Tradescant foot bones and tendons ("Knochen und Sehnen", Hamel 1847c, p.170; Hamel 1847a, 1847b; Brandt 1848a). He also received (as he reported on 29th May 1846) from the Royal Natural History Museum of Copenhagen a cast of their dodo skull, lacking the mandible (Hamel 1846, 1848). Hamel also placed this cast in the Imperial Academy of Sciences of St. Petersburg (Hamel 1847).[190] However, the cast is not present in the collections today (Vladimir Loskot, pers. comm., 13th March 2008). Hamel had also examined the original Tradescant head.

Pezophaps solitaria
Four bones (♂), received from the UMZC in 1905 (Vladimir Loskot, pers. comm., 13th March 2008):
ZISP ¹ 2714-1/110-905 right femur
ZISP ¹ 2714-2/110-905 right tibiotarsus
ZISP ¹ 2714-3/110-905 right fibula
ZISP ¹ 2714-4/110-905 right tarsometatarsus



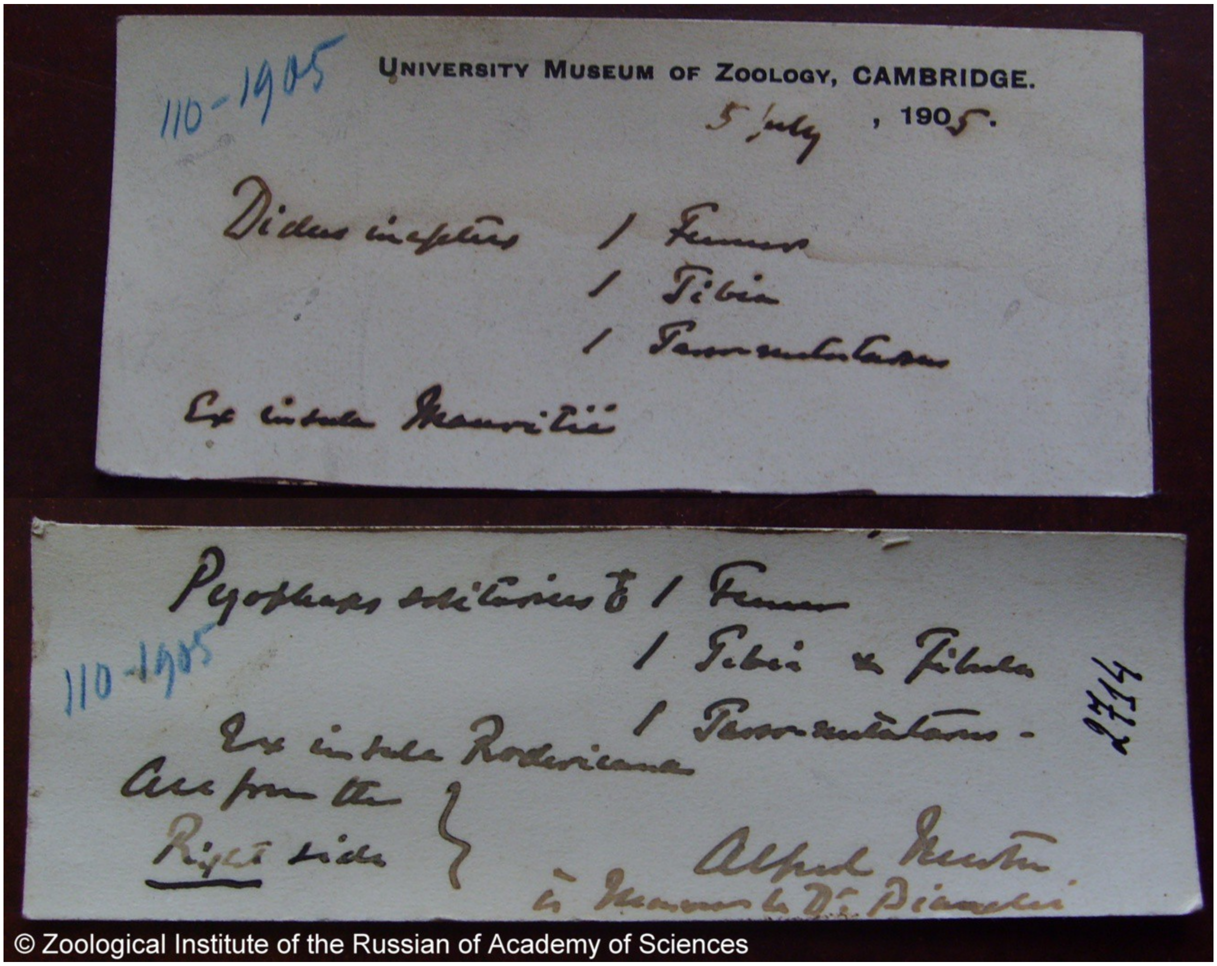
ZISP solitaire bones (© Zoological Institute of the Russian of Academy of Sciences, St. Petersburg).

The accompanying label, in the handwriting of Alfred Newton (excepting the catalogue number), reads:

Pezophaps solitarius ♂ 1 Femur
110-1905 1 Tibia & Fibula
1 Tarsometatarsus.
Ex insula Rodericana
Are from the
Right side Alfred Newton
in M[?] to Dr. Pi[?]

---

[190] Hamel (1846): "Ich habe die Ehre, der Classe einen vor Kurzem aus Copenhagen erhaltenen Abguss von dem im dortigen Königlichen Naturhistorischen Museum befindlichen Kopf eines Dodo vorzulegen" (col.314).



110-1905

UNIVERSITY MUSEUM OF ZOOLOGY, CAMBRIDGE.

5 July , 1905.

Didus ineptus 1 Femur
1 Tibia
1 Tarsometatarsus

Ex insula Mauritii

Pezophaps solitarius ♂ 1 Femur
1 Tibia & Fibula
1 Tarsometatarsus -

110-1905

2714

Ex insula Rodericana

All from the
Right side }

Alfred Newton
à Monsieur le Dr. Bianchi

© Zoological Institute of the Russian of Academy of Sciences

Labels accompanying the ZISP dodo and solitaire bones (© Zoological Institute of the Russian of Academy of Sciences, St. Petersburg).

Darwin Museum, Moscow

Darwin Museum, 57/1 Vavilova St., Moscow 117292, Russia

Raphus cucullatus

OF3538 skeleton, composed of the bones of different individuals and plaster casts (skull, two vertebrae, ribs, wings, pedal phalanges). It was probably received from the private collection of the Russian merchant Alexei Stepanovich Khomyakov[191] in 1919. In 1941 the skeleton was disassembled to be evacuated from Moscow and, in 1998, it was rebuilt by Igor Fadeev with its old framework. The two small metal panels on the wooden stand read “Dronte Didus Inpetus Mare aux Songes Ile Maurice” and “Les Fils d’Emile Deyrolle 46, Rue du Bac, 46 + Paris +” (Igor Fadeev, pers. comm., 30th December 2002; 14th March 2012). Some of the vertebrae are not in the correct position.

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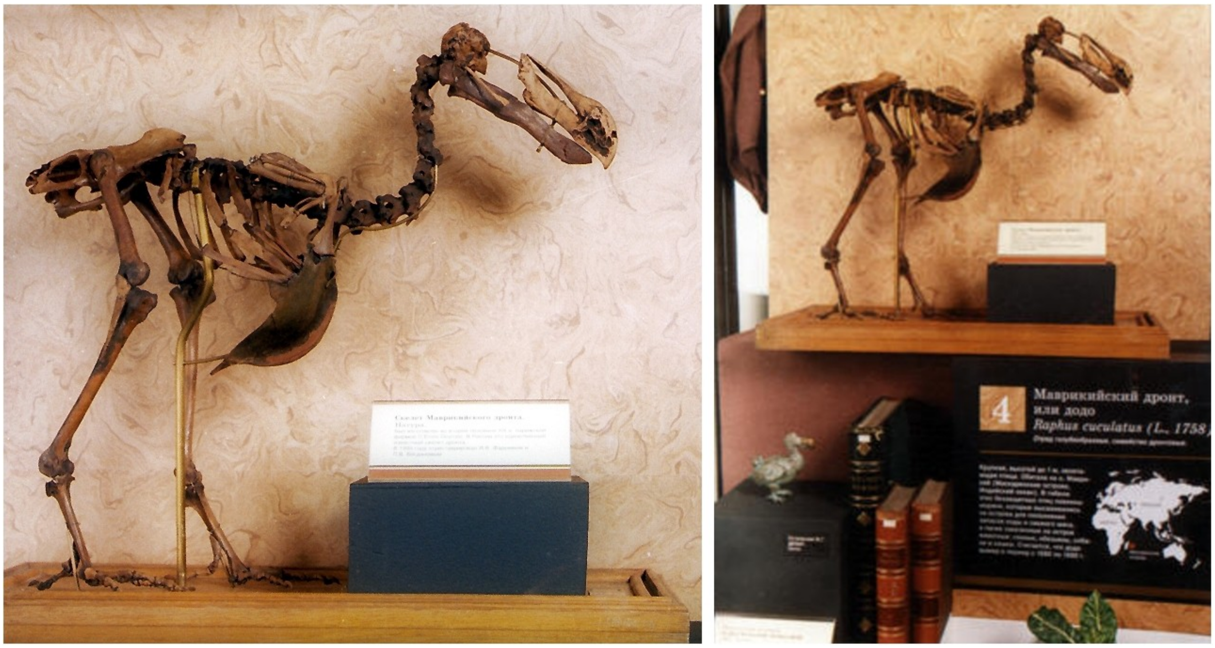
[191] Alexei Stepanovich Khomyakov. Russian merchant who had a building in Moscow. He dealt in rare birds and insects from around the world. He disappeared during the Russian October Revolution of 1917. Much of his collection is currently in the Darwin Museum, Moscow. Not be be confused with his older brother, the philosopher of the same name (Igor Fadeev, pers. comm., 12th November 2010).



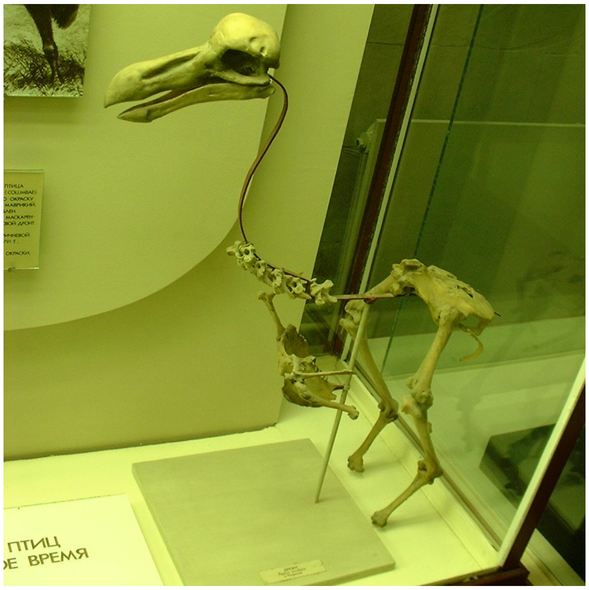
OF3538 (© Darwin Museum, Moscow).

Paleontological Institute (PIN), Moscow

Paleontological Institute, Profsojuznaja 113, Moscow 117647, Russia

Raphus cucullatus

Cast of skeleton on display. The skeleton comprises casts of a skull and mandible (casts of the Copenhagen skull), five mid-cervical vertebrae, sternum (damaged caudally), left humerus, pelvis (damaged cranially and caudally), left and right femur, left and right tibiotarsus, left and right tarsometatarsus.



Paleontological Institute dodo skeleton cast on display (© Jolyon C. Parish, 22nd November 2002).

Delhi Museum – see World Museum, Liverpool

No dodo specimens in the National Museum of Natural History (B. Venugopal, pers. comm., 9th September 2010).

Indian Museum, Kolkata

Indian Museum, Chowringhee, Kolkata, India

Raphus cucullatus

Alcock (1906) reported that "Some bones of the Dodo were presented by the Port Louis Museum" to the Natural History Section of the Indian Museum, Calcutta (p.11). However, there are no dodo specimens currently in Kolkata (J. R. Asokan, pers. comm., 5th May 2012).[192] See also William James Caldwell's Specimens (below).

Museum of the Bombay Natural History Society

Raphus cucullatus

Rear-Admiral William Robert Kennedy (1893),[193] quoting from a letter sent to him by Mr. B. H. Colin, magistrate on Rodrigues, stated that: "Bones of the 'Dodo' are still to be found in some caverns. Pilot Bandorous [*sic*] has the bones of a whole Dodo." (p.442). 'Bandorous' is probably William Vandorous (see Parish 2013, p.251). Colin had been born on Mauritius and was appointed magistrate of Rodrigues on 1st January 1892 (Dupon 1969). Kennedy added "I may tell you here, that I am bringing you [the Bombay Natural History Society] some Dodo bones, also the large stone, always found with the bones, which the bird carried in its stomach (probably for the purpose of digestion)" (*ibid*.). These bones were subsequently added to the museum's collection: in the contributions to the Society's Museum during March 1893 the Honorary Secretary, Herbert Musgrave Phipson (1850-1936), listed: "Bones of a Dodo [...] From Rodriguez [...] H. E. Adml. Kennedy" (Phipson 1893, p.160).

Kennedy (1900) wrote: "Remains of the dodo have been found in Mauritius and at Rodriguez. A complete skeleton of the bird was found in a cavern in the latter island, also a stone, found near the bones [...] I sent some of these bones and a stone to Mr [Herbert Musgrave] Phipson, the Curator of the Natural History Museum at Bombay, believing them to belong to the dodo; but I am bound to say that Admiral Sir William Wharton, the Hydrographer of the Navy, who surveyed Rodriguez, assures me that the dodo did not exist on that island, and that the bones belonged to a bird called the solitaire, a large kind of pigeon. I had always been under the impression that the dodo had existed on Rodriguez, as it undoubtedly did on Mauritius" (p.302).

The current whereabouts of these specimens is unknown: they are not present in the collections of the Bombay Natural History Society (Rahul Khot, pers. comm., 17th May 2012) or the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (formerly Prince of Wales Museum) in Mumbai (Dilip Ranade, pers. comm., 15th September 2010).

Government Central Museum, Madras

Raphus cucullatus

Anon. (1868g) reported that "A set of casts of the bones of the Dodo was received from the Derby Museum, Liverpool" by the Government Central Museum, Madras (Chennai) (p.137). However, there are no dodo specimens in the collections of the Government Museum, Chennai (J. R. Asokan, pers. comm., 23rd April 2012). See also World Museum, Liverpool, above.

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[192] Although the dodo and solitaire are mentioned in Finn (1900, pp.84-85), this is only in passing and no record of any actual specimens is given.

[193] William Robert Kennedy (1838-1916). Admiral. Commander-in-Chief of the East Indies 1892-1895. He was on Rodrigues for ten days.

Yamashina Institute for Ornithology, Japan

Yamashina Institute for Ornithology, 115 Konoyama, Abiko, Chiba 270-1145, Japan

Raphus cucullatus

The Yamashina Institute holds Masauji Hachisuka's dodo bones (Masako Hachisuka *vide* Jan den Hengst, pers. comm., 19th May 2003; Janoo 1996), which were thought to be lost since the Second World War (Janoo 1996). Information for the list given below courtesy of Takeshi Yamasaki (pers. comm., 11th April 2012).

YIO-00261 caudal end of left mandibular ramus. With label, in ink:

> Dodo . Didus ineptus
> Condyle of Lower jaw
> Mauritius

YIO-00262 caudal end of right mandibular ramus. With label, in ink:

> Dodo . Didus ineptus
> Condyle of Lower jaw
> Mauritius

YIO-00263 proximal end of right tibiotarsus, damaged proximomedially. With label.
YIO-00264 left coracoid. With label, in ink. Verso:

> L. Coracoid of the Dodo Didus ineptus
> Connects Sternum to Furculum.

Recto:

> Mauritius.
> Stevens sale 13 March 1866.

YIO-00265 left scapula, lacking distal extremity. With label, in ink:

> [?] ineptus
> [?]
> Mauritius
> 1865.

YIO-00266 right femur, lacking proximal end (black in colour). Bears red writing on cranial face:

> Dodo Didus ineptus
> Rt. Femur
> Mauritius 1865.

YIO-00267 left femur (with a few black 'root' marks). Bears red writing on caudal face:

> Dodo Didus ineptus
> Lt. Femur.
> Mauritius 1865.

YIO-00268 right tibiotarsus, lacking proximal end (blackish). With label, in ink:

Dodo . Didus Ineptus
R. Tibia.
Mauritius 1865.

YIO-00269 left tibiotarsus. With label, in ink:

Dodo. Didus ineptus
Left Tibia,
1865. Mauritius

YIO-00270 left fibula, lacking distal end. With label, in ink:

Dodo Didus ineptus
L. fibula.

YIO-00271 left tarsometatarsus. Bears red writing on caudal face:

Dodo. Didus ineptus
metatarsal 1865. Mauritius

YIO-00272 cast of left tarsometatarsus, broken transversely in two.
YIO-00273 fragments
YIO-00274 sternum, with damage to carina ventrally
YIO-00275 pelvis, lacking cranial and caudal ends
YIO-00276 mandibular symphysis and distal end of right ramus. With label, in ink:

Dodo.
Didus ineptus
gonys with R. ramus
of lower jaw.
Mauritius 1865.

YIO-00277 right tarsometatarsus, with damage to lateral hypotarsal crest. Bears writing in red on caudal face:

Dodo. Didus ineptus
metatarsal 1865
Mauritius

YIO-00261-YIO-00263: cardboard box "Didus ineptus" '(A)' with label, in ink:

Bones of Dodo
Didus ineptus,
G.D.R.

YIO-00264-YIO-00273: cardboard box "Dodo Didus ineptus" '(B)'. YIO-00274-YIO-00277: box with glasss lid.

Hachisuka (1953) records: "Hachisuka Collection, Tokyo.–Some thirty single specimens, including sternum and lower mandible, unearthed from Mare aux Songes near Mahébourg, fomerly in the Rowley Collection [...] a cast of the dessicated right foot preserved in the British Museum" (p.62). Hachisuka bought the collection of bones of the dodo, from Mare aux Songes, at a sale at Stevens' Rooms on 14th November 1934 (lot 247), along with the Keulemans (1873) copy of Savery-BM (lot 253), and bones of the great auk (lot 246), for £15 (Anon. 1934b, Jourdain 1935):

> [Lot] 247 *The Dodo* (Didus ineptus) Mauritius 1865, Sternum, Pelvis, R. L. femur, tibia and metatarsal, condyle of lower maxilla 2, Coracoid, left fibula, left scapula and gonys with R. ramus of lower maxilla (Anon. 1934b, p.18).

The lots were part of the collection of George Dawson Rowley. At least some of the bones originated from the Stevens sale of 13th March 1866 (see below), as evidenced by the label accompanying YIO-00264. The bones were mentioned in Anon. (1940, p.708, entry 588).

Rowley (1877) remarked: "Sitting in a room hung round with portraits of the bird [the dodo] in every direction that I turn my eyes, backed up by its bones, can I be blamed for having a fit of the Do Dos?" (p.123).

Gunma Museum of Natural History

Gunma Museum of Natural History, 1674-1, Kamikuroiwa, Tomioka-shi, Gunma-ken, 370-2345 Japan

Raphus cucullatus

Cast of the skeleton in the Royal Museum of Scotland, prepared by Aart Walen (Aart Walen, pers. comm., 19th June 2012).

Japan

Raphus cucullatus

Cast of a dodo skeleton, mounted in the early 1990s ("about 10 years ago"), by Henk Dikkema, osteoplastical taxidermist, for Aart Walen ("Creatures and Features") for a new ornithological museum in Japan (Henk Dikkema, pers. comm., 9th April 2002, 17th April 2012). The original bones are in the Royal Museum of Scotland, Edinburgh (*ibid*.).

Macleay Museum, Sydney

Macleay Museum, Gosper Lane, University of Sydney, Sydney 2006, Australia

Raphus cucullatus

Left femur (124mm long: Fulton 2013)
Left tibiotarsus
Left tarsometatarsus

These specimens were lost within the Macleay Museum for around 100 years and were rediscovered when the museum collection was placed in storage at the University of Sydney (Fulton 2012). Their label had become disassociated from them. The Macleay bird and fossil collections had been rarely examined since they were put into storage in an attic in 1917 (Fulton 2013). The dodo bones were found in a museum drawer in 1996 and were identified by Graham Fulton: "I identified the unusually robust tarsometatarsus, as columbid, or pigeon, and thus dodo [...] I later confirmed the identification by comparison with a dodo tarsometatarsus held at the Australian Museum" (Fulton 2013, p.172).

The naturalist William John Macleay (1820-1891) wrote in his personal journal for 22nd April 1874: "Mr Brazier[194] called this morning to offer for sale a collection of Mauritius and Madagascar animals. It formed part of a collection sent some months ago by Mr V. Robillard[195] addressed to me & Dr [George]

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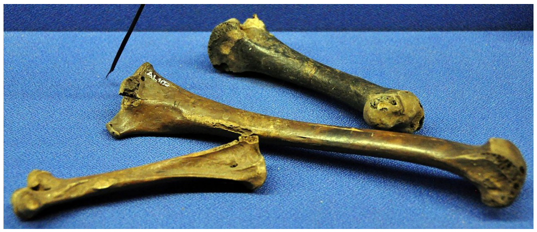
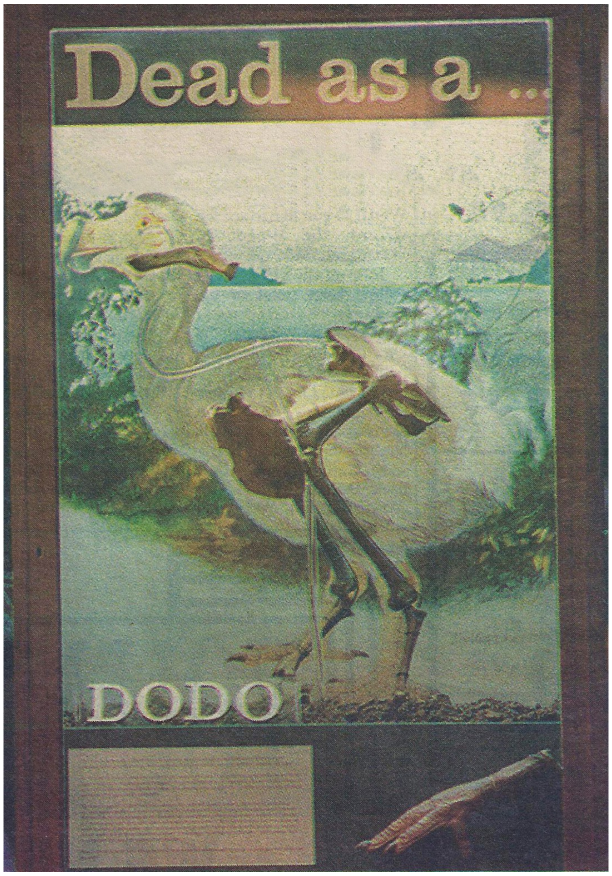
[194] John William Brazier (1842-1930), conchologist, who collected specimens for William Macleay.

[195] Possibly Jean Aime Victor de Robillard (?1813-1892), conchologist and ichthyologist of Port Louis and unofficial

Bennett[196] Trustees of the Museum & which without my hearing about it had been sold as unclaimed goods at the [Sydney] Customs House at one tenth its value" (transcribed by D. S. Horning, 1995, transcript in Macleay Museum, University of Sydney; quoted in Fulton 2013, p.172; Stuart Norrington, pers. comm., 15th November 2001). This collection comprised three mammals, nineteen birds, six fishes, 29 crustacea, sixteen radiata and other unnamed specimens and was purchased by Macleay from Brazier for £10 (Fulton 2013). Figured: G. R. Fulton (2012, fig.6).



The Macleay Museum specimens (© J. C. Merriman, 29th June 2012).



The Macleay dodo bones formerly on display along with specimens lent by the Australian Museum (© *Fairfax Sun*, 9th September 1997).

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member of the RSASM. He collected and sold natural history specimens.

[196] George Bennett (1804-1893), naturalist, was a member of the board of the Australian Museum.

Australian Museum, Sydney

Australian Museum, 6 College Street, Sydney, NSW 2010, Australia. Palaeontology Collection.

Raphus cucullatus

Catalogue (Yong Yi Zhen, pers. comm., 6th October 2010): data compiled by Elanor McCaffery, 16th September 2010:

F.2723 (original no. BM No.184) cast of the Tradescant tarsometatarsus. Pur. Brucciani, Brit. Mus, 1893.[197]

F.112246 (original no. B.1828) left femur. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112247 (original no. B.1830) left tibiotarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112248 (original no. B.1832) left tarsometatarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112281 (original no. B.1834) fibula. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112282 (original no. B.1843) coracoid. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112283 (original no. S.945.a) rib. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112284 (original no. S.945.b) rib. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112285 (original no. S.945.a) vertebra. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112286 (original no. S.945.b) vertebra. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112287 (original no. B.1845) sternum. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112288 (original no. S.945) sternum. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112289 (original no. S.945.a) pelvis. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112290 (original no. S.945.b) pelvis. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112291 (original no. S.945) sternum. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112292 (original no. S.945) sternum. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112295 (original no. S.945) proximal portion of mandible. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112296 (original no. S.945) distal portion of mandible. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112297 (original no. S.945) proximal portion of mandible. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112298 (original no. B.1836) distal portion of mandible. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112299 (original no. B.1837) proximal portion of mandible. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112300 (original no. B.1838) proximal portion of mandible. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112301 (original no. B.1833) right tarsometatarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112302 (original no. B.1842) humerus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112303 (original no. S.945.a) right tarsometatarsus. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112304 (original no. S.945.b) left tarsometatarsus. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112305 (original no. S.945.a) left tibiotarsus. Mare aux Songes. Pres. Director Mauritius Institute, 31st

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[197] Domenico Brucciani & Company, a firm that produced casts for the British Museum. D. Brucciani & Co., Galleria Delle Belle Arti, 40, Russell Street, Covent Garden, W.C.

October 1903.

F.112306 (original no. S.945.b) right tibiotarsus. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112307 (original no. S.945) left femur. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112308 (original no. B.1829) right femur. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112309 (original no. B.1831) right tibiotarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112310 (original no. B.1847) synsacrum. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112311 (original no. B.1848) left tibiotarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112312 (original no. B.1846) pelvis. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112313 (original no. B.1851) left tarsometatarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112314 (original no. B.1852) left femur. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.112315 (original no. S.945.b) vertebra. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112316 (original no. S.945.c) vertebra. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112317 (original no. S.945) rib. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.112318 (original no. S.945) rib. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.135456 (original no. S.945) right femur. Mare aux Songes. Pres. Director Mauritius Institute, 31st October 1903.

F.135457 (original no. B.1849) right tibiotarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.135458 (original no. B.1850) right tarsometatarsus. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.135459 (original no. B.1827) pelvis. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884.

F.135460 (original no. L.1890, BM No.188, O.6158) cast of the BM foot. Mare aux Songes. Exch. Prof. Newton, Cambridge, 1884. In the Report of the Trustees of the Australian Museum for the year ending 31st December 1858, it was stated that the cast was received, along with other casts of fossils, from the Trustees of the British Museum, via Richard Owen, in return for a series of casts of Australian fossils taken to the British Museum by Randolph J. Want (Anon. 1859). At a meeting of the Acclimatisation Society of New South Wales, George Bennett remarked that: "A cast from this foot [BM foot] could be seen in the Museum at Sydney" (Stair 1897, p.297).

The Director of the Mauritius Institute in 1903 was Donald d'Emmerez de Charmoy. F.2723 is labelled as Didus ineptus. F.112283-F.112286, F.112288-F.112297, F.112303-F.112307, F.112315-F.112318, F.135456 are labelled as Didus cucullatus. Some of the dodo bones were exhibited in April 2003, along with a 1687 engraving of the dodo, life-size illustration of the skeleton of the dodo and a skin of *Caloenas nicobarica* (Fenton 2003). A mandible, sternum, right femur, tibiotarsus and tarsometatarsus were exhibited in 1997 at the Macleay Museum, along with the dodo bones belonging to that institution (*Fairfax Sun*, 9th September 1997; see figure above).

Pezophaps solitaria

Catalogue compiled by Robert Jones (Robert Jones, pers. comm., 5th December 2001). However, much 'solitaire' material is actually incorrectly labelled as 'dodo' (Trevor Worthy, pers. comm., 9th October 2010), the only actual solitaire material being that in the second list below (compiled by Elanor McCaffery, 16th September 2010).

F.112289 pelvis
F.112390 pelvis
F.112288 sternum
F.112287 sternum
F.112292 ?sternum
F.112291 sternum
F.112305 tibiotarsus

F.112306 tibiotarsus
F.112309 tibiotarsus
F.112307 femur
F.112308 femur
F.112301 tarsometatarsus
F.112303 tarsometatarsus
F.112304 tarsometatarsus
F.112302 ?
F.112294 upper beak
F.112295 proximal fragment of mandible
F.112296 distal fragment of mandible
F.112297 proximal fragment of mandible
F.112298 distal fragment of mandible
F.112299 proximal fragment of mandible
F.112300 proximal fragment of mandible
F.112283 scapula
F.112284 scapula
F.112279 ?
F.112280 ?
F.112281 ?
F.112282 ?
F.112285 vertebra
F.112286 vertebra

Catalogue (Yong Yi Zhen, pers. comm., 6th October 2010): data compiled by Elanor McCaffery, 16th September 2010:
F.112249 (original no. B.1844) cranium. Cave, Rodrigues. Exch. Prof. Newton, Cambridge, 1884.
F.112250 (original no. B.1839) eight vertebrae. Cave, Rodrigues. Exch. Prof. Newton, Cambridge, 1884.
F.112293 (original no. B.1839) vertebra. Cave, Rodrigues. Exch. Prof. Newton, Cambridge, 1884.
F.112294 (original no. B.1835, 1871) part of beak with premaxilla. Cave, Rodrigues. Exch. Prof. Newton, Cambridge, 1884.

An entry in the Report of the Trustees of the Australian Museum for the year ended 30 June 1881 reads (p.37):

Bones of Pezophaps solitaria

2 Femora.
2 Tibiæ.
2 Tarsal bones.
2 Fibulæ.
1 Portion of an upper mandible.
3 Portions of lower mandible.
9 Vertebræ.
2 Quadrate bones.
1 Humerus.
1 Coracoid.
1 Portion of Cranium.
1 „ Sternum.

Bones of Didus ineptus.

1 Pelvis.
1 Sacrum.
2 Tibia.
2 Tarsal bones.
1 Femur.

The above specimens have not been located within the Palaeontology Collections, although they may be present (Yong Yi Zhen, pers. comm., 19th March 2012, 25th March 2012). Many, if not all, of the specimens labelled as solitaire material are actually dodo (Walter Bowles *ex* Jaynia Sladek, pers. comm., 23rd March 2012). There are no dodo or solitaire specimens in the Ornithology Collections (Jaynia Sladek, pers. comm., 23rd March 2012).

Museum of Victoria, Melbourne

Museum of Victoria, 11 Nicholson St, Carlton, Melbourne, Victoria, Australia
National Museum of Victoria

Raphus cucullatus

Ornithology collection (information from Kirsty Marshall, pers. comm., 22nd March 2008):
B 31707 toe bones
B 31708 toe bones

Palaeontology collection. Registration nos:
P.32610 uncoloured plaster cast of head
P.32611 cast of left tarsometatarsus
P.204244 cast of the BM foot
P.204245 one partial mandible (incomplete on left side), right scapula, right coracoid, sternum, right humerus, pelvis, left femur, right femur, left tibiotarsus, right tibiotarsus, left tarsometatarsus, right tarsometatarsus. These specimens were donated by Henry Barkly and received in December 1865 (old Museum of Victoria information panel: David Pickering, pers. comm., 17th July 2012).

P.32610, P.32611 and P.204244 are casts from the originals from the Ashmolean Museum, Oxford (David Pickering, pers. comm., 7th April 2008; 23rd April 2008).

A report in *The Argus (Melbourne)* from 16th January 1866 (Anon. 1866), noted that "Several bones of the dodo have also been added to the museum, sent to Professor M'Coy[198] by His Excellency Sir Henry Barkly, from Mauritius where the very interesting discovery of the bones was lately made" (p.4). Another reporter, writing in *The South Australian Advertiser*, mentioned the "bones of the dodo" exhibited at the museum (Anon. 1877, p.5). Chapman (1909) reported that: "Several labels and legends for the galleries have been prepared, among which was one descriptive of the Dodo, with a coloured drawing after an authentic painting of this extinct bird" (p.31). Chapman (1929) mentioned that skeletal material of the dodo was exhibited in the National Museum of Victoria, and Mahoney (1944) also remarked that "Among the notable exhibits [is] the skeleton of a dodo presented by Sir Henry Barkly" (p.17).

Western Australian Museum, Perth

Western Australian Museum, 49 Kew Street, Welshpool, WA 6106, Australia. Department of Earth and Planetary Sciences.

Raphus cucullatus

Reconstructed skeleton (Kallio 2005), on display in the museum gallery (Mikael Siversson, pers. comm., 16th May 2008). The skeleton comprises: proximal portions of left and right mandibular rami, symphysis and distal portions of mandibular rami, four cervical vertebrae (three of these are mounted back-to-front), pair of scapulae (mounted vertically), sternum (mounted back-to-front), damaged pelvis, pair of femora (mounted upside-down), two right tibiotarsi, pair of tarsometatarsi, left first metatarsal, pedal phalanges (attached to left foot) enumerated as follows: digit I (one), II (four), III (three), IV (two). The bones are mounted within a perspex body outline (2010). It was apparently acquired in an exchange with another institution prior to 1959 (Helen Ryan, pers. comm., 3rd August 2012).

Canterbury Museum, Christchurch

Canterbury Museum, Rolleston Avenue, Christchurch, New Zealand

Raphus cucullatus

CM Av6276 cast of the Tradescant head
CM Av6277 partial sternum
CM Av6278 eleven vertebrae
CM Av6279 left and right scapulae, left coracoid, left and right humeri, two left carpometacarpi (crushed:

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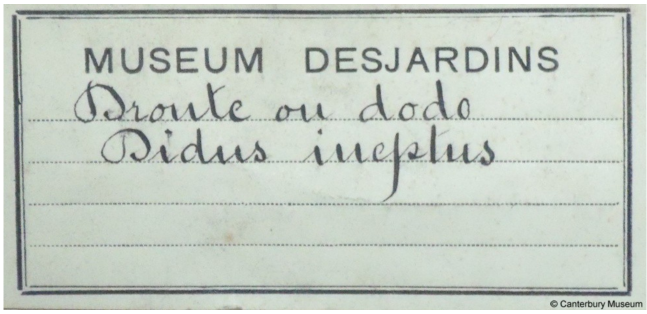
[198] Frederick McCoy (1817-1899).

Paul Scofield, pers. comm., 21st October 2008)
CM Av6280 left and right femora, left and right tibiotarsi, left and right fibulae, left and right tarsometatarsi
CM Av6281 premaxilla, left and right quadrates, mandible (the left quadrate is glued to the mandible, the right one is damaged: Paul Scofield, pers. comm., 21st October 2008)
CM Av6282 pelvis
CM Av6283 pelvis
CM Av6285 casts of: left tarsometatarsus, two first metatarsals, ten phalanges
CM Av6286 sternum, pelvis, right femur, right tibiotarsus, right tarsometatarsus, 15 phalanges (casts of the Tradescant foot: Paul Scofield, pers. comm., 21st October 2008)
CM Av6287 right tarsometatarsus
CM Av8223 pelvis
CM Av8224 partial sternum
CM Av8225 left tarsometatarsus
CM Av8226 left tibiotarsus, ?tarsometatarsus (missing: Trevor Worthy, pers. comm., May 2002)
CM Av8227 left tarsometatarsus
CM Av8228 left tibiotarsus
CM Av8229 left tibiotarsus
CM Av8230 left femur
CM Av8231 left femur
CM Av8232 right femur
CM Av8233 right tibiotarsus (Worthy 2001; right fibula: Trevor Worthy, pers. comm., May 2002)
CM Av8234 right scapula
CM Av8235 left and right mandibular rami
CM Av8236 right mandibular ramus
CM Av8237 right mandibular ramus
CM Av8238 left mandibular ramus
CM Av8239 tip of mandible

The casts of the Tradescant head and foot (CM Av6276, CM Av6286) were probably "amongst the collections that [Henry Ogg] Forbes brought with him when he assumed the Directorship in 1890", although this is unconfirmed (Paul Scofield, pers. comm., 28th February 2008). New Zealand museums appear to have had exchanges and correspondence with Alfred Newton and the Tradescant casts may originate with him (Trevor Worthy, pers. comm., 29th February 2008). The dodo bones were accessioned on 2nd May 1912 and had been exchanged for moa bones with the Museum Desjardins (Paul Scofield, pers. comm., 28th February 2008). Judging from its colouration and preservation, at least some of this material (for example CM Av6281) is probably derived from a non-Mare aux Songes source (pers. obs. from photographs). The label accompanying the bones reads:

> MUSEUM DESJARDINS
> Dronte ou dodo
> Didus ineptus


MUSEUM DESJARDINS
Dronte ou dodo
Didus ineptus
© Canterbury Museum

Label accompanying the dodo bones (© Canterbury Museum, Christchurch).

An article in the *Star* (28th May 1868) reported the following: "PHILOSOPHICAL INSTITUTE.–A meeting of this society has been summoned for this evening [...] Dr [Johann Franz Julius] Haast, the president, intends to [...] show a fine collection of bones of the Dodo. the recently extinct bird of the Mauritius" (p.2). Haast was an important figure in the founding of the Philosophical Institute of Canterbury.

Pezophaps solitaria

CM Av6275 (♂) cranium, premaxilla, left quadrate, tip of mandible and left ramus, left scapula, partial sternum, right humerus, right ulna, left radius, right carpometacarpus, left acetabular part of pelvis, left femur, left tibiotarsus, left tarsometatarsus

CM Av 6287 (♀) four vertebrae, right scapula, right coracoid, right humerus, right ulna, left radius, right carpometacarpus, left femur, left tibiotarsus, right tarsometatarsus

Museum of New Zealand, Wellington

Museum of New Zealand (Te Papa Tongarewa), PO Box 467, Wellington, New Zealand. (Formerly the Dominion Museum). The forerunner to the Museum of New Zealand was the Colonial Museum, which was founded in 1865 on Museum Street, Wellington. In 1913 this became the Dominion Museum, which became the National Museum in 1972 and the Museum of New Zealand Te Papa Tongarewa in 1992.

Raphus cucullatus

NMNZ S.38985 right coracoid, right humerus, left tarsometatarsus. The number '1840' is written in old lettering on the bones and is the same as that on NHMUK A.1840 (Alan Tennyson, pers. comm., 5th March 2008; 14th March 2008).

NMNZ S.38986 (formerly DM 1432) mandibular symphysis & left ramus, right mandibular ramus, sternum, pelvis, one left and one right femur, one left and one right tibiotarsus. March 1873, Mauritius, presented by Alfred Newton, 1873 (Alan Tennyson, pers. comm., 5th March 2008).

In the Eighth Annual Report on the Colonial Museum and Laboratory, it was mentioned that "Professor Newton, of Cambridge, has presented a fine series of the bones of the Dodo and Solitaire" (Hector 1873, p.4) and "[No.] 665 │15 [April 1873] Bones of the Dodo (*Didus ineptus*) │Professor Newton, Cambridge" (*ibid*., p.11) "Bones of the Solitaire (*Pezophaps solitaria*) │Mr. E. Newton, Col. Secretary, Mauritius" (*ibid*.). Buick (1931) mentioned that the Dominion Museum possessed remains of the dodo.

Pezophaps solitaria

NMNZ S.38984 three tips of premaxilla, five portions of mandible (including a left mandibular ramus), six sterna (including a left part of sternum), one vertebra, one left and one right humerus, three right femora, proximal end of right femur, two distal ends of right femur, left femur, proximal end of left femur, distal end of left femur, shaft of left femur, three proximal ends of right tibiotarsus, four distal ends of right tibiotarsus, two left tibiotarsi (lacking proximal ends), proximal end of left tibiotarsus, shaft and distal end of left tibiotarsus, shaft of left tibiotarsus, three distal ends of left tibiotarsus, seven right tarsometatarsi (including right tarsometatarsus, two proximal ends of right tarsometatarsus, three distal ends of right tarsometatarsus), left tarsometatarsus, two distal portions of tarsometatarsus, proximal end of left tarsometatarsus, three distal ends of left tarsometatarsus. April 1873, Rodriguez, presented by Edward Newton (Trevor Worthy, pers. comm.; Alan Tennyson, pers. comm., 5th March 2008).

An article in the *Evening Post* (7th August 1873) read:

> The Wellington Philosophical Society held its first meeting this season in the Museum last evening.
>
> The retiring President, Dr [James] Hector, F.R.S., delivered his valedictory address, [and referred] to the important additions both to the Museum and to the library of the institute, and called attention to the interesting exhibits now laid upon the table, including [...] some bones of the dodo and solitaire, &c.

Private Collections

Henry Baker Tristram's Collection

Henry Baker Tristram's collection of dodo bones consisted of "sternum, pelvis, pairs of femur, tibia, fibula, metatarsus, scapula and coracoid; 5 vertebræ, radius, carpal, 2 lower mandibles, portions of upper jaw, and various smaller bones. Mare-aux-Songes, Mauritius" (Tristram 1889, p.37). Tristram purchased his dodo bones at the Stevens sale of 13th March 1866 for £15 (Lot I). However, there are differences between Stevens' (1866) list of Lot I and Tristram's (1889) catalogue list in that the latter mentions pairs of scapulae, coracoids and fibulae (Stevens' catalogue only listing one bone of each) and "portions of upper jaw, and various smaller bones". It is not known what happened to Tristram's dodo specimens. They may have been donated to the Derby Museum, Liverpool, as his solitaire and other bird specimens were donated to that institution.

Ralfe Whistler's Collection

The Dodo House, Caldbec Hill, Battle, East Sussex TN33 0JR

Raphus cucullatus

Left scapulocoracoid
Left tibiotarsus, damaged at proximal and distal extremities
Right tibiotarsus
Right tarsometatarsus (dark), in two halves
Right tarsometatarsus (mottled surface)
Right tarsometatarsus (mottled surface)
Left tarsometatarsus (dark) [in large display case]
Fragments of reputed dodo eggshell (almost certainly from a moa: pers. obs.; Trevor Worthy, pers. comm., 2nd January 2009). Fuller (2002) stated that: "Ralfe Whistler [...] has a few fragments of shell with a nineteenth century (and allegedly Mare aux Songes) provenance. These fragments may be from dodo eggs or they may not" (p.43). In family tradition the eggshell was thought to have a nineteenth century Mare aux Songes provenance (Ralfe Whistler pers. comm.; Fuller 2002). The eggshell measures between *c*.0.5 and *c*.1.1mm thickness. One fragment bears the mark, in black ink, "3821 P" (Thomas Parkin's[199] symbol). Ralfe Whistler inherited it from his father, the ornithologist Hugh Whistler,[200] who, in turn, received it from Parkin in the early twentieth century. The eggshell is kept in two small boxes, together with the dodo bones, having been associated with them since Hugh Whistler's time, probably from before he went to India in *c*.1902 (Ralfe Whistler, pers. comm., 20th December 2008). As the eggshell had always been kept with Ralfe's small collection of dodo bones it was assumed to be from a dodo, although its size, as indicated by the curvature of the fragments, almost certainly negates this. The two-layer structure and form of the pores is indicative of moa eggshell, and the appearance of the fragments suggests a possible North Island, New Zealand, dune origin (Trevor Worthy, pers. comm., 2nd January 2009). Indeed, some fragments have sand grains adhering to them. Figured: Smith (1998, p.60).

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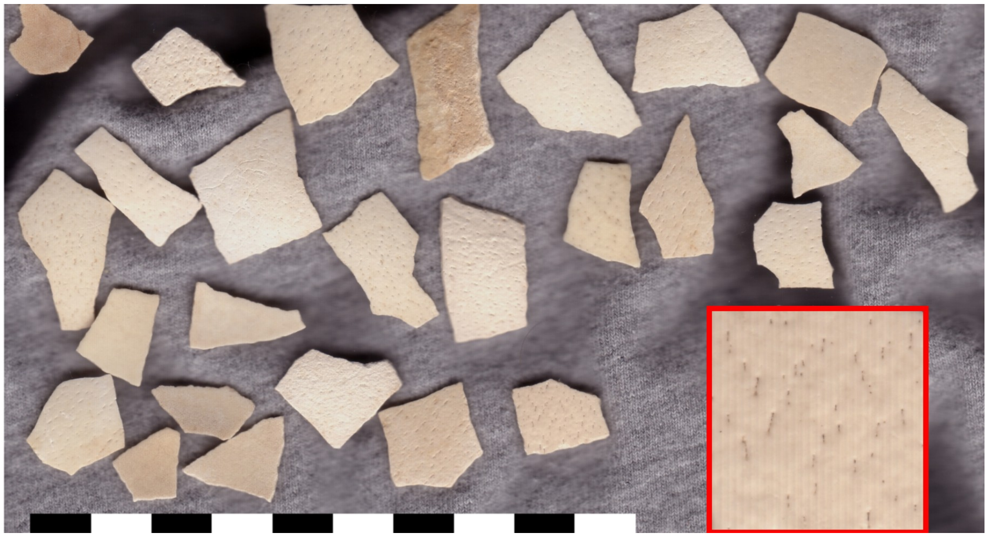
[199] Thomas Parkin (1845-1932). English ornithologist. He lived at 'Fairseat', High Wickham, Hastings, Sussex, and died on 10th October 1932.

[200] Hugh Whistler (1889-1943). F.Z.S., M.B.O.U. English ornithologist. He was in India from December 1909 to 1924 and January 1925 to April 1926. He died on 7th July 1943.



Ralfe Whistler's 'dodo' eggshell (© Jolyon C. Parish, December 2008).

The dodo bones were inherited by Ralfe Whistler from his father, Hugh Whistler. Thomas Parkin acquired two tibiotarsi and two tarsometatarsi from A. G. Bennett,[201] which passed to Hugh Whistler. George Clark kept some dodo bones for himself and these passed to his daughter, Edith Elizabeth Clark,[202] on his death. She sold some of these to Parkin.

Two letters from Edith Elizabeth Clark, George Clark's daughter, to Thomas Parkin (Collection of Ralfe Whistler):

"Tveldene"
16 Lower Park Road
Hastings
April 28th 1921

Dear Mr. Parkin

I thank you for this morning's letter.

I am very sorry to hear that you have been ill & I hope under God's blessing you will soon recover your health.

I am sympathetic with you as I am myself only a poor invalid & scarcely able to walk.

I thank you for all the kind advice about the Dodo bones. A neighbour of mine who seems to know you, Mr. Cousins, [a]dvised me to write a short account of

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[201] Arthur George Bennett (b. about 1880) (see below). Postman. The NHMUK records list: "Bennett; Arthur George (1888-1961); Civil Servant and Naturalist", but it is not currently known whether this was the same person.

[202] Edith Elizabeth Clark (1846-1923). Born in Mauritius. In 1901 she was living with her sisters, Jane Francis ('Fanny') Clark (age '62', born in Guernsey) and Mary Rebecca 'Milaus' (Mylius; age 60) – see Addenda – at 98 Chesterton Road, Kensington, London. In 1911 she lived with her sister, Jane (age '70') at 25 Wellington Road, Hastings, Sussex. In 1923 she was living at 17 Lower Park-road, Hastings; she died on 14th November 1923. Jane Francis Clark died on 9th December 1915 at 16 Lower Park-road, Hastings. She left her possessions to her sister, Edith Elizabeth Clark.

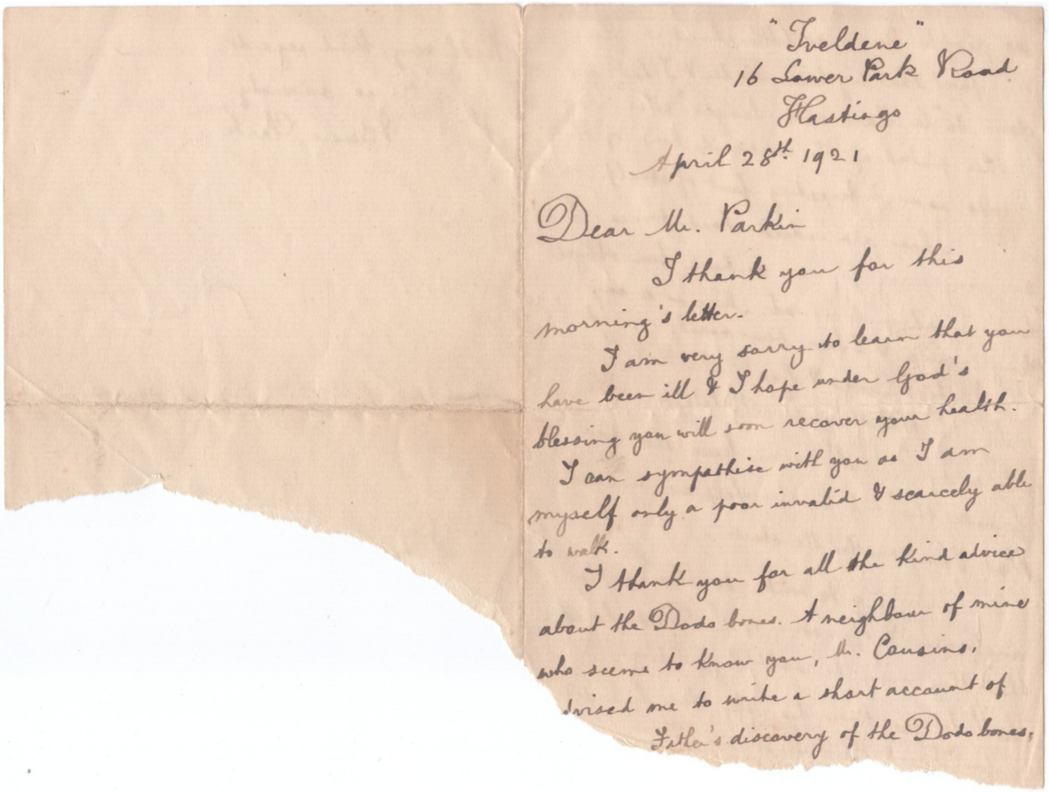
Father's discovery of the Dodo bones,

as people know so little about it. Then the fact that my dear sister & I had gone down to "la Mare aux Songes" when my Father picked up the coracoid bone of the Dodo, is an interesting fact of itself.

These are indeed hard times. I am very sorry for you to have been obliged to diminish your capital. Mine is a very tiny income & I have been nearly ruined by the Rates & Taxes & Gas Bill. Well I can only say that the Lord will help me. He who said: "I will never leave thee nor forsake thee" will surely help me now, so that I may weather the storm.

I am going to write to Stevens the auctioneer & offer some of the Dodo bones that they may be sold by auction. I shall let you know his reply when he writes before I send them up to him.

With very kind regards
Yours sincerely
Bessie Clark



"Iveldene"
16 Lower Park Road
Hastings

April 28th 1921

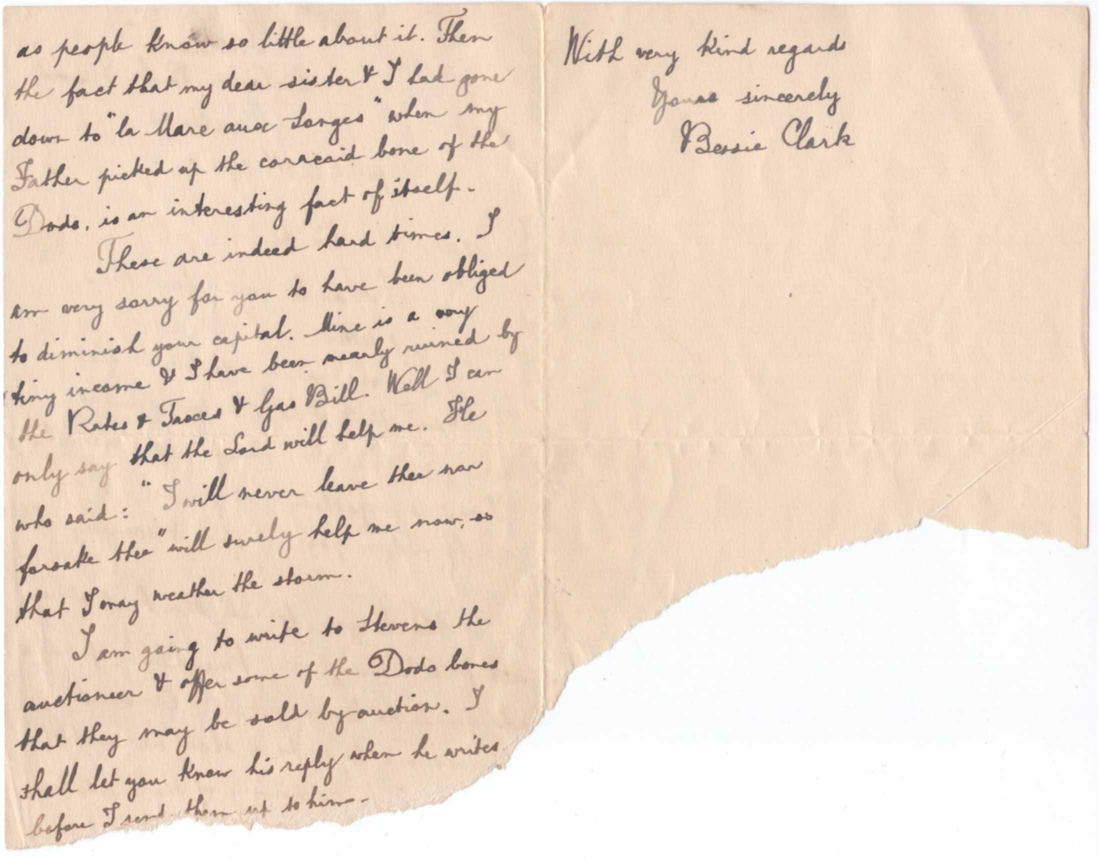
Dear Mr. Parkin

I thank you for this morning's letter.

I am very sorry to learn that you have been ill & I hope under God's blessing you will soon recover your health.

I can sympathise with you as I am myself only a poor invalid & scarcely able to walk.

I thank you for all the kind advice about the Dodo bones. A neighbour of mine who seems to know you, Mr. Cousins, dvised me to write a short account of Father's discovery of the Dodo bones,



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the fact that my dear sister & I had gone
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Father picked up the coracoid bone of the
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I am going to write to Stevens the
auctioneer & offer some of the Dodo bones
that they may be sold by auction. I
shall let you know his reply when he writes
before I send them out to him.

With very kind regards
Yours sincerely
Bessie Clark

Second letter:

Thos. Parkin Esq
High Wickham
Hastings

"Tveldene"
16 Lower Park Road
Hastings
Dec. 13th 1922

Dear Mr. Parkin

I hope your friend has not altered his mind concerning the Dodo bones you had selected for him, namely the coracoid bone & the two metatarsi.

I have put them in a small box ready for your messenger to take away when he calls.

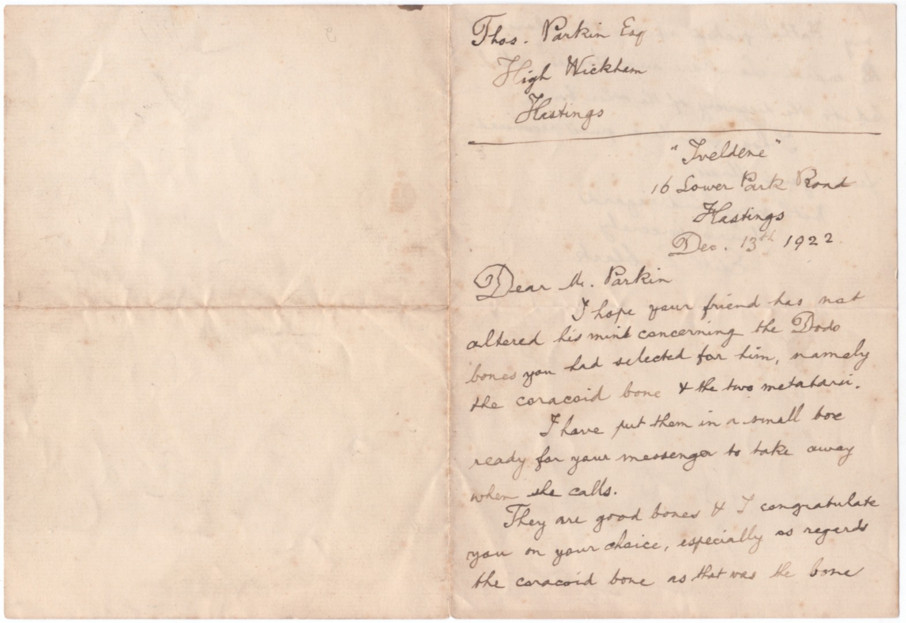
They are good bones & I congratulate you on your choice, especially as regards the coracoid bone as that was the bone

my Father picked up on the shores of

the marsh "La Mare aux Songes," which led to the discovery of the other bones.

I hope you have quite recovered from your illness.

With very kind regards
Yours sincerely
Edith E. Clark



Thos. Parkin Esq
High Wickham
Hastings

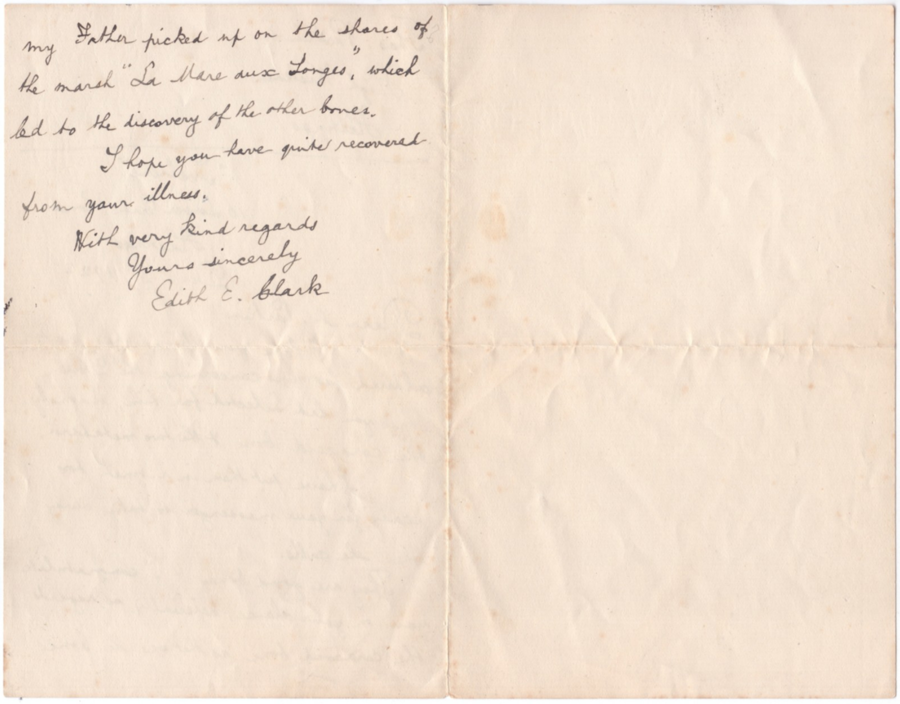
"Iveldene"
16 Lower Park Road
Hastings
Dec. 13th 1922

Dear M. Parkin

I hope your friend has not altered his mind concerning the Dodo bones you had selected for him, namely the coracoid bone & the two metatarsi.

I have put them in a small box ready for your messenger to take away when she calls.

They are good bones & I congratulate you on your choice, especially as regards the coracoid bone as that was the bone



my Father picked up on the shores of the marsh "La Mare aux Songes", which led to the discovery of the other bones.

I hope you have quite recovered from your illness.

With very kind regards
Yours sincerely
Edith E. Clark

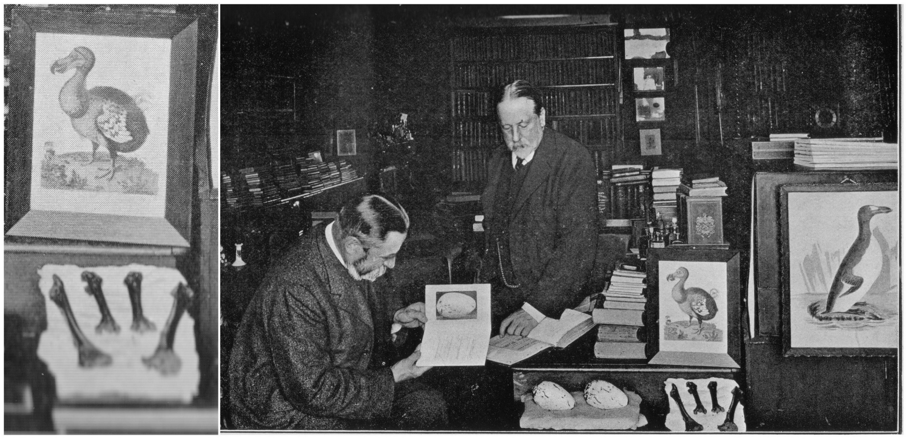
Letter from Arthur George Bennett to Thomas Parkin, on headed notepaper bearing the headers "Oological & Ornithological specimens Aparatus [*sic*] Etc."; "A. G. BENNETT, 34. Harwood Terrace. Kings Road, Fulham, London, S, W" (Collection of Ralfe Whistler):

> Jan 22nd [190]7.
> Mr. T Parkin
> Dear Sir
> Enclosed are the
> Dodo tarsi etc which I am
> pleased to tell you I secured
> at 10/-. The Moa's egg went for
> 21/- & the stuffed Golden Eagle
> at 30/-, I have packed each
> bone separately to ensure safe
> carriage, again thanking you
> I am Sir yours faithfully
> A G Bennett

The friend of Parkin could be either Edward Bidwell (see below) or Hugh Whistler. Whistler may have been given the bones by Parkin: "I think the Dodo bones were given to my father, he was given lots of books by Parkin and I feel sure he would not have bought anything from him. I suppose they could have been in a will of Parkins, but feel they were a gift" (Ralfe Whistler, pers. comm., 10th September 2000). Parkin died in 1932 so dodo bones must have passed to Hugh Whistler prior to this, unless left in Parkin's will.

At the Thirteenth Annual Congress of the South-Eastern Union of Scientific Societies, held at the Congress Museum at Hastings and St. Leonards from 10th-13th June 1908, "Mr. Parkin also had on show, from his collections, some bones of the Dodo from the *Màre aux songes*" (Anon. 1908c, p.lxix).

A photograph of Edward Bidwell[203] and Thomas Parkin in Parkin's library at Fairseat, High Wickham, Hastings, shows dodo bones: two tibiotarsi and two tarsometatarsi (see figure below).



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[203] Edward Bidwell (1845-1929). Ornithologist. Bidwell held a property at 1 Trig Lane, Upper Thames Street, London, E.C. (1894, 1905, 1921: London, England, Electoral Registers, 1832-1965; The Naturalists' Directory 1905). He lived at 7 Ormond Terrace, Richmond, Surrey (1882); Fonnereau house, East Twickenham (1894); 12 Calabria Road, High, City of London (1912); 12 High, City of London (1914) and 12 Woodberry Grove, Finsbury Park, London (1921) (The International Scientists' Directory 1882; London, England, Electoral Registers, 1832-1965). In the University of Cambridge there are letters from Bidwell to Alfred Newton from 1875-1887 (MS Add.9839/1B/570-608, Correspondence and Papers, Alfred Newton Papers). See also UMZC, above.

Edward Bidwell and Thomas Parkin in Parkin's library at Fairseat, High Wickham, Hastings with, *left*, an elargement depicting the dodo bones and a copy of George Edwards' engraving (collection of Ralfe Whistler).

It seems likely that the scapulocoracoid and two tarsometatarsi came from Edith Clark *via* Parkin and the other two tarsometatarsi and two tibiotarsi came from Bidwell (as illustrated in the published photograph).

Bones figured: Smith (1998, p.60); Grihault (2005, p.37); Wintle (2007, p.14).

Possibly connected with the above is a mention of the offer of sale of dodo bones at Christie's by a "young lady at Hastings", as contained in an album of letters (quoted in Marillier 1926, p.253):

> Dear Sirs, – I have a few Dodo bones to sell. Would you be willing to undertake the sale of them? At present I am only sending up 2 Tibae (*sic*), 2 Mettatarsi (*sic*), 1 Pelvis, 2 Fibulae, 2 Humerus, etc.

Bidwell's Collection

On 19th June 1906 Thomas Parkin gave a lecture on "Some Extinct Birds of the Mascarene Islands including Madagascar, with the probable Causes of their Extinction" and there exhibited dodo bones and a cast of the Tradescant head lent by Edward Bidwell (Anon. 1906 *Hastings and St. Leonards Observer*). Bidwell's collection was split up either during his lifetime or shortly after and it is very likely that this is where Ralfe Whistler's dodo bones came from. Parkin was a friend of Bidwell and obtained several specimens from him (Errol Fuller, pers. comm., 17th January 2008). Bidwell was an ornithologist and lived in London. In 1905 his address was 1 Trig Lane, Upper Thames Street, London, E.C.

Errol Fuller's Collection

Information from Errol Fuller (pers. comm., 17th January 2008, 25th January 2008, 4th September 2010)

Raphus cucullatus

Dodo bones: mandible, pelvis and several leg bones from a nineteenth-century collection of bones of Mare aux Songes origin. Figured: Fuller (2002, pp.112, 128); Fuller (2003, p.36).

Plaster cast of the Tradescant head

Bronze cast of the BM foot, taken from a nineteenth-century cast formerly in the stock of Deyrolle, Paris (see below)

Francis Trevelyan Buckland

In a letter dated 14th October 1848 (E-0277), Francis Trevelyan Buckland, writing from Westminster, thanked Strickland for the head of the dodo (presumably a cast of the Tradescant head) and remarked that his father, William Buckland, informed Bartlett that he might take it to the Geological Society for examination, although an exhibition would be better (Rookmaaker 2010).

Bonhams, Knightsbridge, London

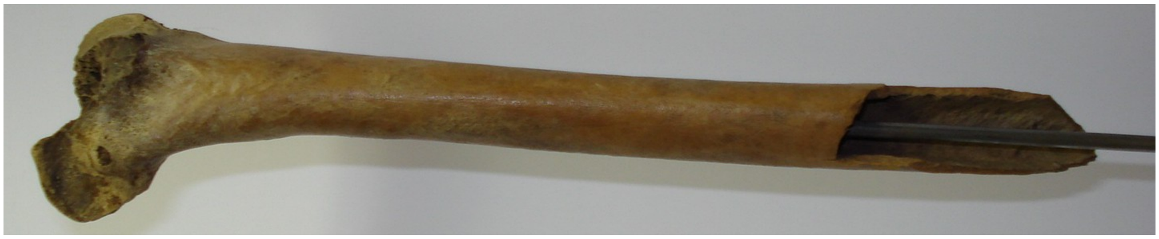
At an auction at Bonhams, Knightsbridge, London, held on 27th July 2005 (sale 11775), the following lot was sold: "272 An articulated cast of the skeleton of a Dodo" (http://www.bonhams.com/cgi-bin/public.sh/pubweb/publicSite.r?sContinent=EUR&screen=ResultXDescPrint&iSaleNo=11775 [accessed 4 November 2010]). The skeleton cast is believed to have originated from a longstanding trade client who deals in taxidermy (Amina Ali-Shah, pers comm., 23rd August 2011).

Viktor Wynd's Little Shop of Horrors

11 Mare Street, London E8 4RP

Raphus cucullatus

The distal ~two-thirds of a tibiotarsus was on sale at Viktor Wynd's Little Shop of Horrors. It originated from a Victorian gentleman's collection and was sold to a private collector in Swansea in around August 2011. The seller also has five other bones: a ?cervical vertebra and four partial leg bones. The original collection comprised several specimens, since dispersed (James Cranfield, pers. comm., 7th October 2011).

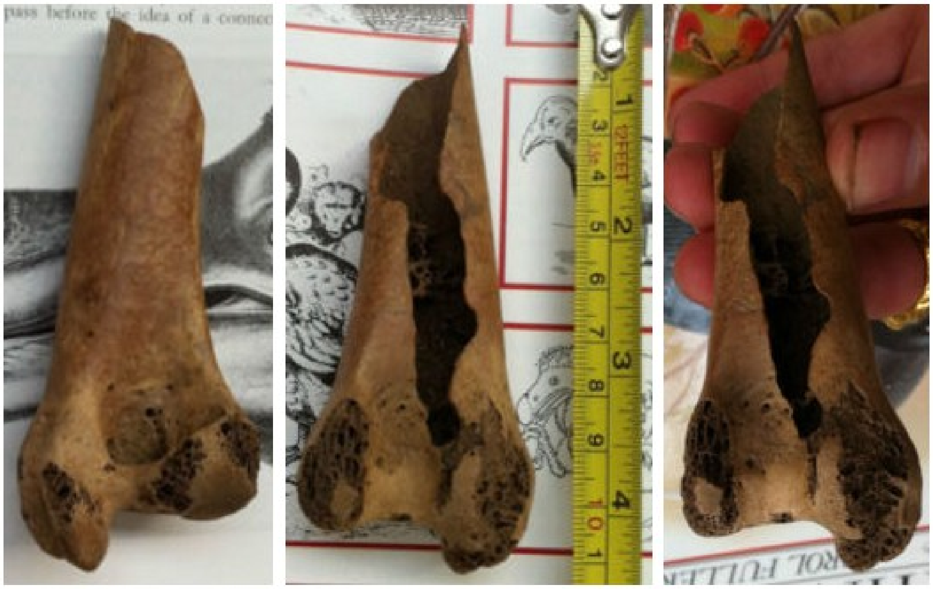


Distal ~two-thirds of a tibiotarsus on sale at Viktor Wynd's Little Shop of Horrors (© Viktor Wynd's Little Shop of Horrors).

Distal end of left femur. Available to purchase on the auction website ebay for £2250 (Item number: 290640437605. Listing ended 25th November 2012). The description reads:

> Dodo bone - 10cm/4 inches long 4.5cm/ 1 3/4 inches wide tapering to 2cm / 1 3/4 inches wide at end[.] Viktor Wynd specialises in objects of great beauty, rarity & historical importance. We believe this to be a truly unique opportunity to acquire a piece of the most iconic extinct bird, we have only ever seen one other Dodo bone on the market worldwide which we placed in an important private collection.

(from:
http://www.ebay.co.uk/itm/Dodo-bone-/290640437605?pt=UK_Collectables_AnimalCollectables_SM&hash=item43ab852165
images at:
http://cgi.ebay.co.uk/ws/eBayISAPI.dll?VISuperSize&item=290640437605
accessed 13 February 2012]



Distal end of left femur on sale by Viktor Wynd's Little Shop of Horrors (© Viktor Wynd's Little Shop of Horrors).

This specimen was subsequently put up for sale at Christie's, South Kensington, Lot 47, Sale 8668, 24th April 2013 (on public view since 20th April), 10:30a.m. Travel, Science and Natural History Department. "Almost certainly excavated in 1865 at Mare aux Songes in 1865 by Clark. 19th Century English collection. Thence by descent until acquired by current owner."
http://www.christies.com/lotfinder/fossils-minerals/a-fragment-of-a-dodo-femur-mauritius-5672783-details.aspx?from=searchresults&intObjectID=5672783&sid=062455fb-5751-4ea3-89c8-c092b1b66c75
[accessed 4 April 2013]

Summers Place Auctions, Billingshurst, West Sussex

A pelvis (lacking caudal end and cranial extremity), a left femur and a cast of a skeleton were sold by Summers Place Auctions of Billingshurst in West Sussex. They were part of the collection of an anonymous private individual and were reported to be "worth more than £30,000 together" (Robinson 2013). The auction, named the "Evolution Sale" took place on 27th November 2013 at 14:00. Viewing was available from 23rd to 26th November, 10:00-16:00 and on the morning of the sale. The lots were described as follows:

> Lot Number 74
> The highly important pelvis bone of the celebrated dodo (*Raphus cucullatus*)
> Probably the only example in private hands, this specimen was found in the Mare aux Songes, Mauritius during the 1860s when excavations were carried out by a local schoolmaster named George Clarke. [...]
> 2cm.; 1ins by 15cm.; 6ins by 12cm.; 4½ins
> [Estimated Price:] £12,000 – £15,000 (Anon. 2013, p.64).
>
> Lot Number 75
> The leg bone of a dodo (*Raphus cucullatus*)
> The first complete leg bone to be sold at auction since 1934. Like the pelvis, this bone was found in the swamp known as the Mare aux Songes [...] It is one of the bones collected by George Clarke [...] This is one of very few such items to have remained in private hands. [...]
> 15cm.; 6ins high by 4cm.; 1½ins wide by 3cm.; 1ins deep
> [Estimated Price:] £7,000 – £10,000 (*ibid.*, p.65).
>
> Lot Number 79
> A replica skeleton of a dodo in a glass case
> Case size: 80cm.; 31½ins high by 68cm.; 27ins wide by 32cm.; 12½ins deep
> [Estimated Price:] £1,500 – £2,500 [...]
> This composite has been created in resin from casts taken from original dodo bones by Luke Williams and is an accurate representation of the real skeleton (*ibid.*, p.67).

Lot 74: http://www.summersplaceauctions.com/catalogues/current/20/detail/18316/
Lot 75: http://www.summersplaceauctions.com/catalogues/current/20/detail/18317/
Lot 79: http://www.summersplaceauctions.com/catalogues/current/20/detail/18321/
[accessed 6 February 2014]
Lot 79, the replica dodo skeleton, was not sold, but was later acquired by the Booth Museum (see above).

Charles Ottley Groom-Napier's Collection

Charles Ottley Groom-Napier (1868) obtained a "fine series" of dodo bones, which were named by Owen; presumably these were for Napier's 'museum'. These included a femur tibiotarsus, fibula and tarsometatarsus (Napier & Reade 1886).

Carpenter (1866) reported that at the meeting of the Zoological Section of the Bristol Naturalists' Society, held on 12th April 1866, "Mr. C. O. Groom-Napier exhibited an interesting series of bones of the Dodo, chiefly leg bones, and read an extract from the *Mauritius Commercial Gazette*, quoted in the *Zoologist* for

February, 1866, with reference to them" (pp.27-28).

At the meeting of the Bristol Naturalists' Society held on 10th October 1867 the Secretary, Mr. Swayne, read a paper on the dodo by Groom-Napier, who was unable to attend the meeting. A "series of bones found lately in the Mauritius" were also exhibited (Carpenter 1867, p.88).

In reviewing the Mauritius and Seychelles Sections of the fourth Colonial and Indian Exhibition of 1886, held in South Kensington, London, Despeissis (1889) noted that "Representing the extinct fauna of the Island were some bones of the Dodo *(Didus ineptus)* picked up in Mare aux Songes and consisting of ribs, vertebræ and leg bones, belonging to the Museum of the Prince of Mantua and Montferrat [= Charles Ottley Groom-Napier]" (p.71). He added that "the Prince" had also lent a copy of Savery-Vienna. Saunders (1886) also noted that some dodo bones were exhibited in the ornithology section, presumably referring to the above-metioned specimens.

Figured: Napier (*c*.1870, pl.xiv). Napier (1870) stated that 100 copies of a special edition of his book were to be printed with photographic plates, including one depicting his dodo bones.

Nettlecombe Park, Somerset

A supposed stuffed dodo (in reality a bustard: see Parish 2013, p.177) was kept in a case along with "a cast of the head and leg from the remains now in the Ashmolean Museum at Oxford" (Winn 1852, p.463).

Thomas Boyle Grierson's Dodo Bones

At the Sixth Meeting of the Session of the Dumfriesshire & Galloway Natural History and Antiquarian Society, held in the Assembly Street Club Rooms on 7th April 1868, "A paper was read by Dr Grierson[204] of Thornhill on "The Extinction of Species." Dr Grierson exhibited a tibial bone of the Dinornis or great Moa Bird of New Zealand, and a set of the bones of the Dodo from Mauritius, explaining what was known of the remains of these singular extinct birds. A lively and interesting discussion ensued on the subject of this paper" (Anon. 1871e, p.8).

Paul Carié's Collection

A skeleton composed of bones from Mare aux Songes in the collection of Paul Carié. The skeleton is currently in the possession of the brother of Joël Carié, the grandson of Paul Carié, and is a family heirloom (Eric Buffetaut, pers. comm., 24th March 2011). Figured: Carié (1976, p.viii).[205]

Lamarck

Melville, in a letter to Strickland (26th October 1847; D-223) requested a cast of the Tradescant head for Lamarck (Rookmaaker 2010).[206]

Michel Edmond de Selys Longchamps

Writing from Liège, De Selys Longchamps informed Strickland (23rd January 1847; F-408) that he had received the casts of the Tradescant dodo head and requested that Strickland thank Duncan for him. He also remarked that it would be of interest to compare the casts with the Copenhagen skull (Rookmaaker 2010).

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[204] Thomas Boyle Grierson (1818-1889). Doctor at Thornhill. Started a museum around 1852 which was moved to New Street and opened to the public in 1872. In the late twentieth century his zoological specimens were later sent to the Royal Scottish Museum, Edinburgh University, and the Zoology Department of Glasgow University.

[205] The article is by Paul Carié, Jr., the son of Paul Carié.

[206] As Jean-Baptiste Pierre Antoine de Monet de Lamarck died in 1829, this may have been one of his sons, André (b. 1781), Antoine (b. 1786), Charles Rene (b. 1787), or Auguste.

Collection of Baron Muller

Raphus cucullatus

Baron Muller[207] was Head Director of the Zoological Gardens at Marseilles. His collection was held in Stuttgart and was offered for sale (Culwer 1854). In the catalogue of his collection is the entry:

> 1. Didus ineptus L.
>   a) St. Maurit. caput (Calwer 1854, p.53).

This specimen is evidently not in the collections of the Staatliches Museum für Naturkunde, Stuttgart (Friederike Woog, pers. comm., 14th September 2010).

Collection of Sheikh Saud Al-Thani of Qatar

Raphus cucullatus

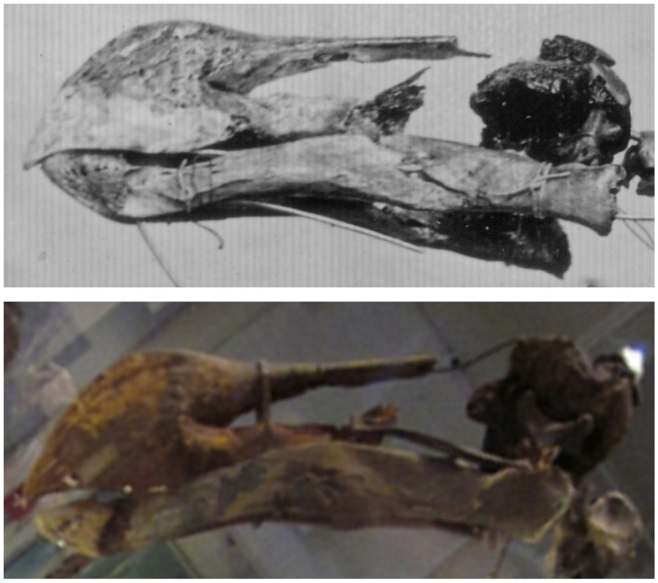
A variety of dodo bones, some of which were once on public exhibition in Qatar (Errol Fuller, pers. comm., 17th January 2008, 25th January 2008)

Louis Etienne Thirioux's Collection

See Transcriptions: Thirioux-Newton Correspondence.

Thirioux's skeleton (1902)

(see Transcriptions: Thirioux-Newton Correspondence: fig.11) A cast was made of the cranium, at least, which was used by Deyrolle for their skeletons. It *may* have been one of the skeletons listed by Rountree *et al*. (1952), but appears to have been dismantled. It also appears to have two thirteenth cervical vertebrae.



A comparison of the skull of one of Thirioux's dodo skeletons (*left*) (Transcriptions: Thirioux-Newton Correspondence: fig.11. © UMZC) with the skull of the Harvard dodo skeleton (*right*) (MCZ 340825. © Martin Kalfatovic, 17th January 2011).

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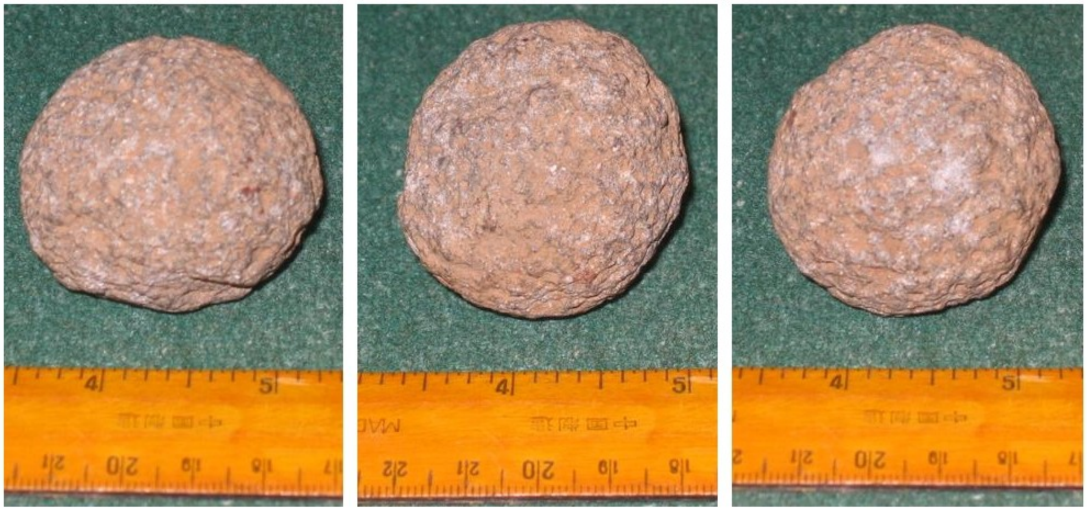
[207] Probably Johann Wilhelm von Müller (1824-1866). German ornithologist and explorer.

Pierre Bourgault de Coudray’s Collection

Mauritius. See Parish (2013, pp.292-293) for further details.

Supposed dodo gastrolith. Figured: Van Wissen (1995, p.79); Ziswiler (1996, p.70); Staub (2000, pl.4b); Grihault (2005, p.100); Parish (2013, fig.6.12).



Pierre Bourgault du Coudray’s supposed dodo gastrolith (© Pierre Bourgault).

Samuel George Morton’s Collection

Samuel George Morton (1799-1851), natural scientist and Vice President of the Academy of Natural Sciences of Philadelphia, possessed a cast of the Tradescant head: “334 Plaster model of the Dodo,–(*Didus ineptus*,)–the sole remaining relic of this species, now preserved in the Ashmolean Museum, at Oxford, England. G. Mantell, M.D., of London.” (Morton 1849).

Professor Williams, Cleveland – see World Museum, Liverpool

There are no dodo specimens at the Cleveland Museum of Natural History and the identity of “Professor Williams” remains unknown. The specimens may not have been connected with the museum at all (Andy Jones, pers. comm., 19th November 2010).

Adam Savage

Adam Savage’s dodo skeleton. A poor reconstruction or model of a dodo skeleton. Contains no original bones.

Johann Friedrich Brandt

The committee of the Royal Museum at Copenhagen gave a cast of the Copenhagen dodo skull to Brandt for the zoological museum (Brandt 1848b). Brandt informed Strickland (letter of 17th July 1846; F-201) that he had lately procured a cast of the Copenhagen dodo skull (Rookmaaker 2010). Figured: Brandt (1848, pp.21, 24 [“*A. Agin del.*” “*C. Bernardský sculps.*”[208]]); Vrolik (1853, p.182 [after Brandt 1848; “WB” “B.T.vLoo.”]).

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[208] Or “*E. Bernardský sculps.*”

William James Caldwell's Specimens

Raphus cucullatus

See Parish (2013, pp.251-252, 365) and Transcriptions.

Pezophaps solitaria

Caldwell probably found his specimens in Caverne Solitaire (Hume *et al*. 2014b). In his report presented at the Société Royale des Arts et des Sciences, on the Intercolonial Exhibition (Exposition Inter-Coloniale) which took place at the Collége Royale on 9th September 1875, Leonce le Juge (1876) noted that Caldwell exhibited a skeleton of the solitaire in Section IV, Class 16 Natural History: "The most interesting specimen was a skeleton of the Solitaire (*Didus Solitarius*), exhibited by Mr. Caldwell and, which, we believe, is one of most complete which are even in the Museum of Europe. Mr. Caldwell discovered this specimen in one of the many caverns of Rodrigues" (p.162).

Bouton (1876) reported: "Thanks to his activity and by frequent searches among the caverns of Rodrigues, M. J. Caldwell, sent on a special mission to that Island, found fossil bones belonging to several animals, and especially to the *Solitaire* [...] From scattered bones, Mr J. Caldwell has been able to construct an entire skeleton, a few small missing fragments having been artificially added. It is perhaps the most perfect existing specimen of that curious bird" (p.ix).

A notice in *Nature*, 14th October 1875, p.526, stated:

> We have had forwarded to us two photographs of a mounted specimen of an almost complete Solitaire (*Pezophaps solitarius*), found, with a second, in the island of Rodriguez, in the June of this year, by Mr. J. Caldwell, the Assistant Colonial Secretary of Mauritius, and Sergeant Morris.

A typewritten memorandum, written by Alfred Newton, attached to UMZC 415.R provides the following information: "In 1875 the late Mr. James Caldwell obtained 2 complete skeletons with the stone that had been in the crop of one of the birds which is now in the museum, having been figured in the Phil. Trans. He took the 2 skeletons with him to Calcutta [= Kolkata] hoping to sell them to the museum there, but died before he had done so, and all enquiries have failed to throw any light upon what became of them. No other remains seem to have been since recorded".The current location of the two associated skeletons is unknown. Hume *et al*. (2014b) speculated that they are possibly in the Mauritius Institute collections, and that the mounted solitaire skeleton might be a composite of Caldwell's male and female skeletons. However, the evidence of the above memorandum, in addition to other information, would seem to negate this (see Natural History Museum, Mauritius Institute).

The handwritten caption for a photograph, depicting one of Caldwell's skeletons, in the Balfour and Newton Libraries, University of Cambridge (Indian Ocean MS. volume, item 28), reads:

> Didus solitarius. Owen.
> (Female ?)
> Rodrigues. 7 June 1875.
> Height 2f. 3¼ in.
> NB. Atlas bone not in photograph.

The reverse reads:

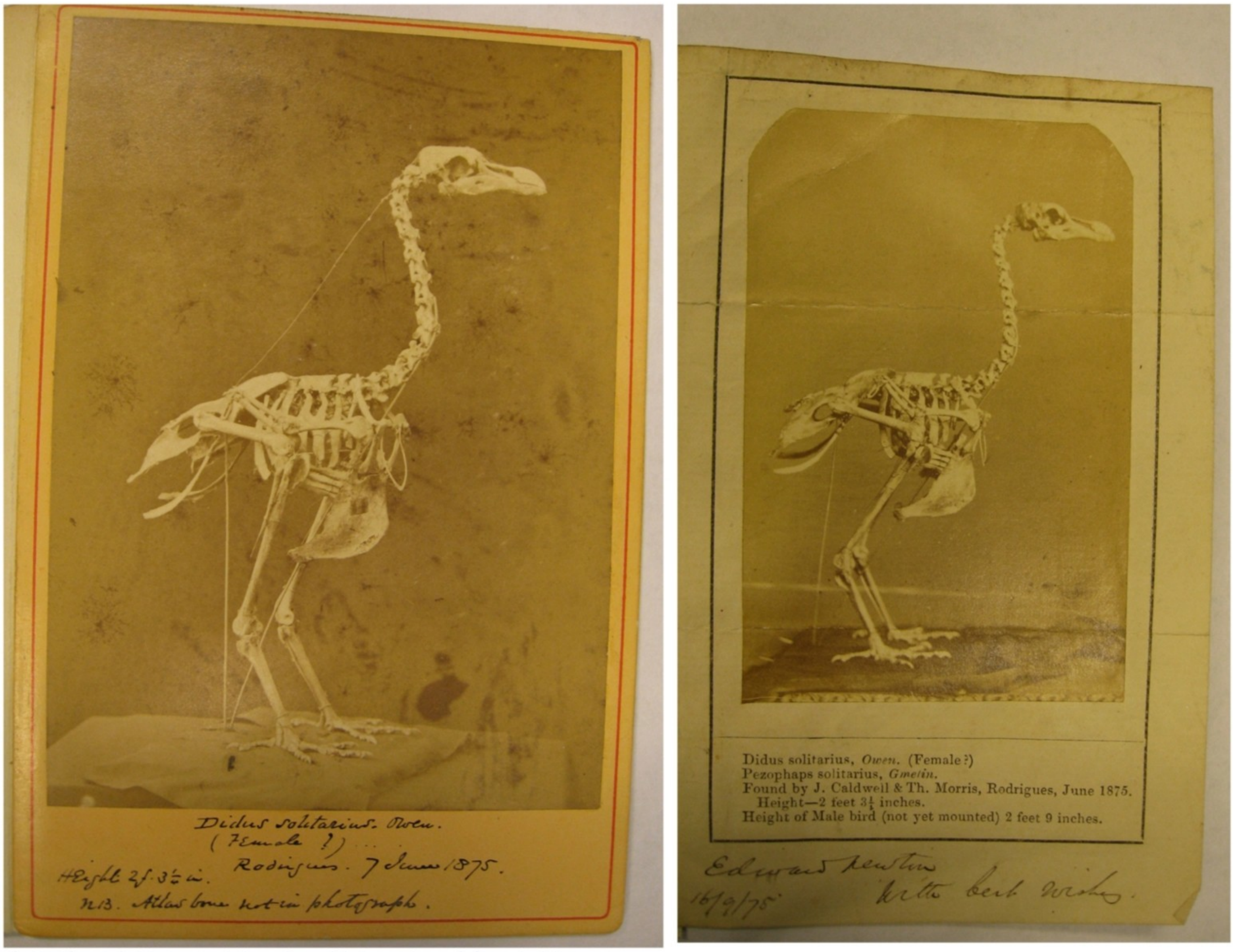
> 1st copy
> Hon E. Newton. C.M.S.
> from J. Caldwell
> 4 June 1877

A printed copy of the photograph bears the printed caption:

> Didus solitarius, *Owen*. (Female?)
> Pezophaps solitarius, *Gmelin*.
> Found by J. Caldwell & Th. Morris, Rodrigues, June 1875.
> Height–2 feet 3¼ inches.
> Height of Male bird (not yet mounted) 2 feet 9 inches.

Beneath is handwritten:

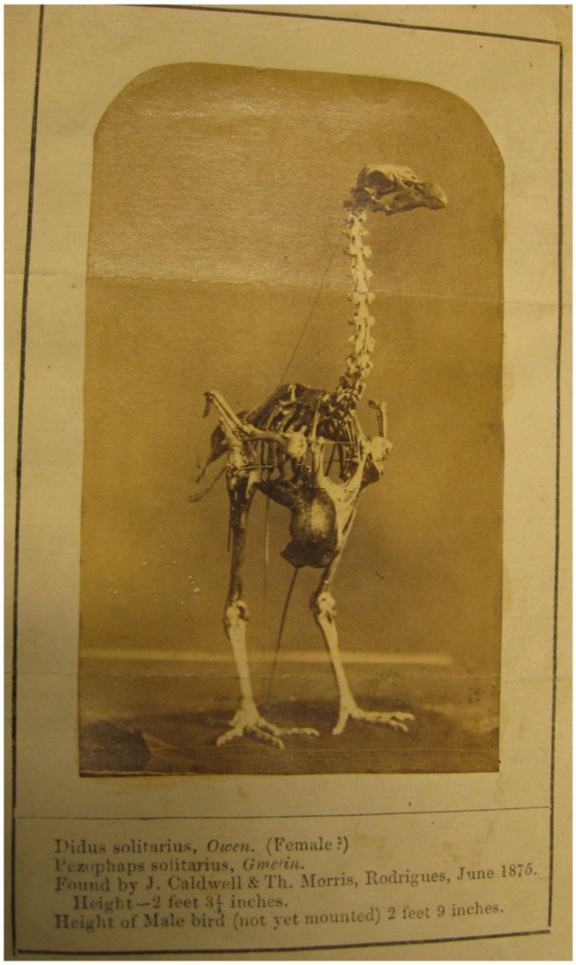
> Edward Newton
> 16/9/75 With best wishes


Didus solitarius. Owen.
(Female ?)
Rodrigues. 7 June 1875.
Height 2f. 3½ in.
N.B. Atlas bone not in photograph.
Didus solitarius, Owen. (Female?)
Pezophaps solitarius, Gmelin.
Found by J. Caldwell & Th. Morris, Rodrigues, June 1875.
Height—2 feet 3¼ inches.
Height of Male bird (not yet mounted) 2 feet 9 inches.
Edward Newton
16/9/75
With best wishes.

© Balfour & Newton Libraries, University of Cambridge

Photographs of Caldwell's ♂ (*left*) and ♀ (*right*) solitaire skeletons, Indian Ocean MS. volume, item 28, Balfour and Newton Libraries, University of Cambridge (© Balfour & Newton Libraries, University of Cambridge).

A second photograph, showing the skeleton in front view, bears the same caption, printed. Further details of Caldwell's finds are given in Parish (2013, pp.248-251, 293-294).



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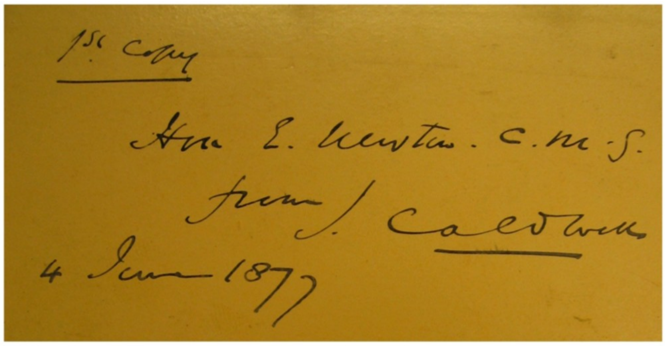
Height—2 feet 3¼ inches.
Height of Male bird (not yet mounted) 2 feet 9 inches.



1st Copy

Hon E. Newton. C.M.G.
from J. Caldwell
4 June 1877

© Balfour & Newton Libraries, University of Cambridge

Printed photographs of Caldwell's ♂ solitaire skeleton (*left*) and the annotation on the reverse of the photograph of the ♀ skeleton (*right*). Indian Ocean MS. volume, item 28, Balfour and Newton Libraries, University of Cambridge (© Balfour & Newton Libraries, University of Cambridge).

Caldwell is known to have donated a skull of *Pteropus rodricensis*, "found in a cave along with bones of *Pezophaps solitarius*" to the Indian Museum, Calcutta, on 30th May 1881 (Anderson 1881, p.100). Furthermore, in the copy of Andersen (1912), held in the mammal section of the NHM, there is a note in the margin on page 218, under *P. niger* and evidently in Andersen's handwriting, which reads: "subfossil skull in Calcutta Mus. from Rodrigues cave, with bones [of] *Pezophaps solitarius*" (quoted in Cheke & Dahl 1981, p.221). Caldwell's photographs of his solitaire skeletons (Indian Ocean MS. volume, item 28, Balfour and Newton Libraries, University of Cambridge): figured: Hume *et al*. (2014b, fig.20).

William Vandorous' Specimens

Pezophaps solitaria

See Parish (2013, p.251). Current location unknown (Hume *et al*. 2014b).

Joseph Clanfergael O'Halloran's Specimens

Pezophaps solitaria

Collected by Joseph Clanfergael O'Halloran[209] in 1881 or later. Originally placed in the collections of the

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[209] Joseph Clanfergael O'Halloran (1846-1920). He became a police inspector on Mauritius in 1870 and Police

RSASM ("box of bones") (Hume *et al*. 2014b, p.4). Current location unknown, but Hume *et al*. (2014b) speculate that they could possibly be in the Mauritius Institute collections, perhaps comprising the mounted skeleton (see above). William Vandorous' specimens had inspired Frederick Napier-Broome (see Parish 2013, p.251) to provide funding for a further excavation on Rodrigues, conducted by Joseph Clanfergael O'Halloran. Unfortunately, O'Halloran did not record where he found the specimens.

University of Derby

A reconstructed skeleton of the dodo was displayed at a lecture given by Graham Rowe at the University of Derby, entitled "As Dead As A Dodo?" (Anon. 2014: Dead As A Dodo? (with photograph)).

Commercially Available Specimens

Stevens Sale, 13th March 1866

Advertisement in *The Athenæum*, Nº 1991, Dec. 23, 1865, p.867:

> *Bones of the Extinct Dodo, from Mauritius*.
> R. J. C. STEVENS begs to announce that he has been favoured with instructions to offer for SALE by AUCTION, at his Great Room, 38, King-street, Covent garden, EARLY in JANUARY NEXT, a Most Valuable, Extensive, and Highly-Interesting SERIES of BONES of the Extinct Bird, "THE DODO," which have been recently discovered, in very fine preservation, and have only just arrived in this Country; they will be divided into several Sets, each Set forming a Lot.
>
> Catalogues are preparing, and the Day of Sale given next Advertisement.
>
> December 22, 1865.

Advertisement in *The Athenæum*, Nº 1998, Feb. 10, 1866, p.191; Nº 2000, Feb. 24, 1866, p.255; Nº 2001, Mar. 3, 1866, p.287; Nº 2002, Mar. 10, 1866, p.318:

> *Bones of the Extinct Dodo, from Mauritius*.
> R. J. C. STEVENS begs to announce that he will SELL by AUCTION, at his Great Rooms, 38, King-street, Covent-garden, on TUESDAY, March 13, at 2 o'clock, a Valuable and Interesting COLLECTION of BONES of the Extinct Bird "The Dodo," from Mauritius, which have recently arrived in this country; these Bones have been divided into eight, more or less, complete sets, each set forming a lot. For further particulars *vide Athenæum*, January 20, 1866.
>
> The Bones will be on view the day prior and morning of Sale, and Catalogues had.

The article in *The Athenæum* (no.1995, 20th January 1866, p.98) refers to a review of Owen's paper read at the 9th January meeting of the ZSL.

Catalogue:

BONES OF THE DODO, from Mauritius.

Magistrate on Rodrigues on 1st November 1879. After a visit to Mauritius he returned to Rodrigues on 26th June 1882. He finally departed for England on 23rd October 1890. He had married Elizabeth Norman in Mauritius, and their daughter, Daisy, was born in 1880 on Rodrigues.

It has long been supposed by Naturalists that the MORASSES of MAURITIUS must contain a vast quantity of remains of the wonderful extinct Bird, DIDUS INEPTUS, which formerly inhabited that Island, but until lately the specimens so found have been singularly few in number. During the past Autumn a small Morass, the “Mare aux Songes,” has been drained for agricultural purposes, and during the operation a considerable number of bones were discovered. These have been collected by a Gentleman residing near the spot, and sent to England, where they have been submitted to the inspection of Professor OWEN and other competent Naturalists, who are unanimously agreed as to the extraordinary interest of the discovery. At the last meeting of the Zoological Society of London, held the 9th of January, 1866, Professor OWEN read a paper, giving a full account of the discovery, and describing in detail the bones submitted to him. – *Vide* ATHENÆUM, 20th January, 1866.

The collection contains several series of bones, more or less complete, and eight of these series have been placed in the hands of

Mr. J. C. STEVENS,
Of No. 38, KING STREET, COVENT GARDEN, LONDON,
By whom, at his Great Rooms, they will be SOLD BY AUCTION,
On TUESDAY, the 13th day of MARCH, 1866,
AT TWO O’CLOCK.

These series are composed of the following bones, *by far the greater part of which have been hitherto absolutely unknown to Naturalists*, and will be thus arranged for sale:–

LOT I.
Sternum – R. coracoid – R. & L. condyle of lower jaw – gonys & L. ramus of ditto – pelvis – R. & L. tarso-metatarsus – R. & L. femur – R. & L. tibia – R. scapula – L. fibula – 5 cervical vertebræ.

LOT II.
Sternum – R. coracoid – R. & L. condyle of lower jaw – gonys & L. ramus of ditto – pelvis – R. & L. tarso-metatarsus – R. & L. femur – R. & L. tibia – R. scapula – L. fibula – 5 cervical vertebræ.

LOT III.
Sternum – L. coracoid – gonys and L. ramus of lower jaw – R. & L. condyle of ditto – pelvis – R. & L. tarso-metatarsus – R. & L. femur – R. & L. tibia – R. scapula – 5 cervical vertebræ.

LOT IV.
Sternum – R. coracoid – gonys with L. ramus of lower jaw – R. & L. condyle of ditto – pelvis – R. & L. femur – R. & L. tibia – R. & L. tarso-metatarsus – L. scapula – 4 cervical vertebræ.

LOT V.
Sternum – gonys with R. ramus of lower jaw – R. & L. condyle of ditto – pelvis – R. & L. femur – R. & L. tibia – R. & L. tarso-metatarsus – L. scapula – L. fibula – 4 cervical vertebræ.

LOT VI.
Sternum – gonys with R. ramus of lower jaw – R. & L. condyle of ditto – L. coracoid – pelvis – R. & L. femur – R. & L. tibia – R. & L. tarso-metatarsus – L. scapula – L. fibula – 4 cervical vertebræ.

LOT VII.
Gonys with L. ramus of lower jaw – R. & L. condyle of ditto – L. coracoid – pelvis – R. & L. femur – R. & L. tibia – R. & L. tarso metatarsus – R. scapula – L. fibula – 5 cervical vertebræ.

LOT VIII.
R. & L. femur – R. & L. tibia – R. & L. tarso-metatarsus – R. & L. fibula.

Directors of Foreign Museums, and other Gentlemen who cannot attend the Sale, may be assured of their instructions being faithfully attended to by

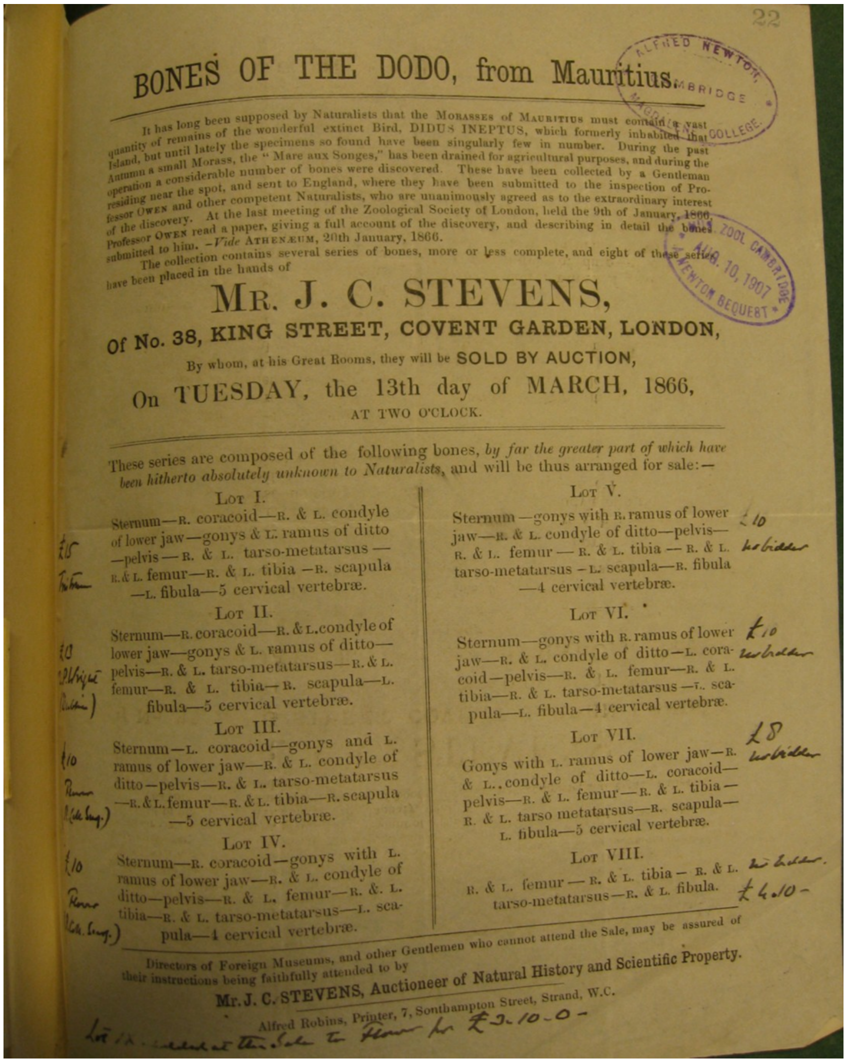
Mr. J. C. Stevens, Auctioneer of Natural History and Scientific Property.

Alfred Robins, Printer, 7, Southampton Street, W.C.

From an annotated copy of the above sale advertisement in the Balfour & Newton Libraries, University of Cambridge (Indian Ocean MS. Volume Item No.22):

Lot I £15 Tristram
Lot II £13 E. P. Wright (Dublin) [University of Dublin]
Lot III £10 Flower Royal College of Surgeons
Lot IV £10 Flower Royal College of Surgeons
Lot V £10 no bidder
Lot VI £10 no bidder
Lot VII £5 no bidder
Lot VIII £4.10- no bidder
Lot IX (not advertised) £3-10-0 Flower

The NHM Palaeontology Library copy of the catalogue (83A o STE) bears two handwritten annotations (ref. Richard Owen, *The Athenæum* 20th January 1866): next to Lot I is '£15' and next to Lot II is '£14' (Sarah Sworder, pers. comm., 12th August 2011).



22

ALFRED NEWTON, MAGDALENE COLLEGE, CAMBRIDGE

BONES OF THE DODO, from Mauritius.

It has long been supposed by Naturalists that the MORASSES of MAURITIUS must contain a vast quantity of remains of the wonderful extinct Bird, DIDUS INEPTUS, which formerly inhabited that Island, but until lately the specimens so found have been singularly few in number. During the past Autumn a small Morass, the "Mare aux Songes," has been drained for agricultural purposes, and during the operation a considerable number of bones were discovered. These have been collected by a Gentleman residing near the spot, and sent to England, where they have been submitted to the inspection of Professor OWEN and other competent Naturalists, who are unanimously agreed as to the extraordinary interest of the discovery. At the last meeting of the Zoological Society of London, held the 9th of January, 1866, Professor OWEN read a paper, giving a full account of the discovery, and describing in detail the bones submitted to him. —*Vide* ATHENÆUM, 20th January, 1866.

The collection contains several series of bones, more or less complete, and eight of these series have been placed in the hands of

ZOOL. CAMBRIDGE AUG. 10, 1907 NEWTON BEQUEST

MR. J. C. STEVENS,

Of No. 38, KING STREET, COVENT GARDEN, LONDON,
By whom, at his Great Rooms, they will be SOLD BY AUCTION,
On TUESDAY, the 13th day of MARCH, 1866,
AT TWO O'CLOCK.

These series are composed of the following bones, *by far the greater part of which have been hitherto absolutely unknown to Naturalists*, and will be thus arranged for sale:—

LOT I.

Sternum—R. coracoid—R. & L. condyle of lower jaw—gonys & L. ramus of ditto—pelvis—R. & L. tarso-metatarsus—R. & L. femur—R. & L. tibia—R. scapula—L. fibula—5 cervical vertebræ.

£15 Tristram

LOT II.

Sternum—R. coracoid—R. & L. condyle of lower jaw—gonys & L. ramus of ditto—pelvis—R. & L. tarso-metatarsus—R. & L. femur—R. & L. tibia—R. scapula—L. fibula—5 cervical vertebræ.

£10 E. P. Wright (Dublin)

LOT III.

Sternum—L. coracoid—gonys and L. ramus of lower jaw—R. & L. condyle of ditto—pelvis—R. & L. tarso-metatarsus—R. & L. femur—R. & L. tibia—R. scapula—5 cervical vertebræ.

£10 Flower (Coll. Surg.)

LOT IV.

Sternum—R. coracoid—gonys with L. ramus of lower jaw—R. & L. condyle of ditto—pelvis—R. & L. femur—R. & L. tibia—R. & L. tarso-metatarsus—L. scapula—4 cervical vertebræ.

£10 Flower (Coll. Surg.)

LOT V.

Sternum—gonys with R. ramus of lower jaw—R. & L. condyle of ditto—pelvis—R. & L. femur—R. & L. tibia—R. & L. tarso-metatarsus—L. scapula—R. fibula—4 cervical vertebræ.

£10 no bidder

LOT VI.

Sternum—gonys with R. ramus of lower jaw—R. & L. condyle of ditto—L. coracoid—pelvis—R. & L. femur—R. & L. tibia—R. & L. tarso-metatarsus—L. scapula—L. fibula—4 cervical vertebræ.

£10 no bidder

LOT VII.

Gonys with L. ramus of lower jaw—R. & L. condyle of ditto—L. coracoid—pelvis—R. & L. femur—R. & L. tibia—R. & L. tarso metatarsus—R. scapula—L. fibula—5 cervical vertebræ.

£8 no bidder

LOT VIII.

R. & L. femur—R. & L. tibia—R. & L. tarso-metatarsus—R. & L. fibula.

no bidder. £4.10-

Directors of Foreign Museums, and other Gentlemen who cannot attend the Sale, may be assured of their instructions being faithfully attended to by

Mr. J. C. STEVENS, Auctioneer of Natural History and Scientific Property.

Alfred Robins, Printer, 7, Southampton Street, Strand, W.C.

Lot IX [illegible] at the Sale to Flower for £3-10-0-

Annotated copy of the 13th March 1866 Stevens sale advertisement in the Balfour & Newton Libraries, University of Cambridge (Indian Ocean MS. Volume Item No.22. © Balfour & Newton Libraries, University of Cambridge).

It was reported in the *Medical Times and Gazette* that "The principal purchasers were the College of Surgeons and the Univesities of Oxford and Dublin" (Anon. 1866l, p.292). One lot was purchased by the University of Oxford for £10 (Anon. 1866b).

Edward Newton recommended that auctioning the dodo bones at Stevens might be the most profitable for Clark's superfluous specimens (letter from Edward Newton to Alfred Newton, 4th November 1865, 24/3, p.173, *ex* Hume *et al*. 2009). The bones to be sold at Stevens were shipped on 24th November 1865. The date for auction was intended to be 5th January 1866, but this was put back to 13th March. After Mylius had passed the bones on to Owen to take his pick, the remaining bones were then sold at Stevens. This meant that the auctioned bones had been confirmed as dodo by Owen (Hume *et al*. 2009). Milne-Edwards (1866b) remarked that the bones discovered by Clark "were sent to London, where several of them were sold at the auction on 13 March last; this circumstance enabled me to get an important series of these pieces" (pp.357-358).

According to information accompanying OUM 19615, there were also sales on 14th March and 29th July 1866. In the end, over 230 dodo bones were sold at Stevens in March 1866 (letter from Edward W. Robinson to Edward Wood, 21st July 1867. The Manchester Museum: ZAC/1/125. See above). Dodo bones acquired at the Stevens sales include OUM 19615, UMZC 415.K and the Yamashina Institute of Ornithology specimens.

Later Stevens' Sales
Advertisement in *The Athenæum*, N° 3380, Aug. 6, 1892, p.179:

> *TUESDAY NEXT,*
> *Fine Collection of Curiosities from New Guinea, British Lepidoptera, Shells, and other Natual History Specimens.*
> R. J. C. STEVENS will SELL by AUCTION,
> at his Great Rooms, 38, King street, Covent-garden, on TUESDAY NEXT, August 9, at half past 12 o'clock precisely, the COLLECTION of BRITISH LEPIDOPTERA formed by the late E. COOPER, Esq.—Heads and Horns of Animals—Shells—Minerals—Bones of the *Dodo*—Fossils—Herbarium ; also a very fine and valuable Collection of Curiosities from New Guinea, &c —Cabinets, &c.
> On view the day prior 10 till 5 and Morning of Sale and Catalogues had.

Sale of dodo bones in 1896:

> THERE was an important sale of birds' eggs and nests at Stevens' Auction Rooms, Covent Garden, London, on April the 22nd and 23rd [...] Odd bones of the great auk went for £1 5s.; odd bones of the dodo, 12s.; some bones of the moa, £1 5s. The two days' sale was, with some exceptions, devoted to the collection of Mr. Leopold Field, F.R.S.E., comprising many rare nests and eggs (Anon. 1896c, p.69).

Dodo bones for sale, 1867

An advertisement in *The Ibis* (new series, vol.iii, no.10, April 1867; no.11, July 1867) reads:

> BONES OF THE DODO (*Didus ineptus*) FROM MAURITIUS.
> Mr. E. HIGGINS (successor to Mr. SAMUEL STEVENS), 24 BLOOMSBURY STREET, LONDON, W.C., has on sale *two very fine sets* of Dodos' bones, including sternum and sacrum, received from GEORGE CLARK, Esq., of Mauritius, the discoverer of these interesting relics. (*Vide* 'Ibis,' 1866, p. 141, and Prof. Owen's 'Memoir on the Dodo,' recently published.)
> Price of each set £15. Further details supplied on application.

Samuel Stevens (1817-1899) had sold the Natural History Agency to E. T. Higgins in 1867.

A number of sales at Stevens' Rooms, Covent Garden, included dodo bones (Errol Fuller, pers. comm., 17th January 2008).

Dodo bones for sale, 1879

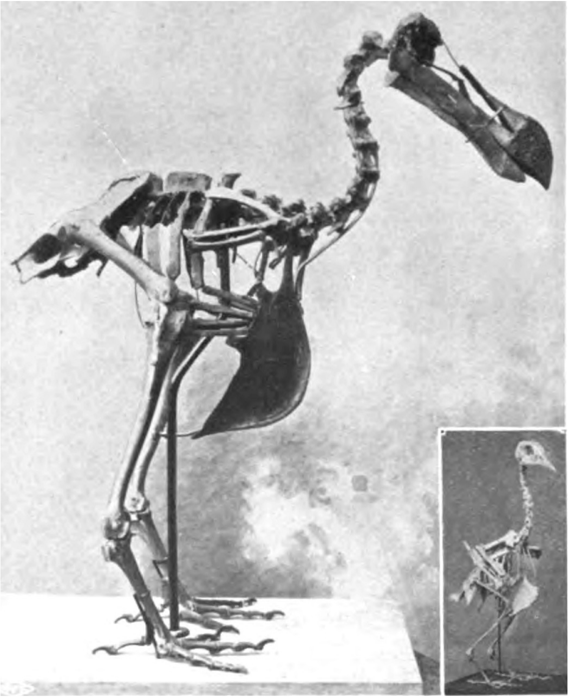
An advertisement in *Nature* (Volume xx, May 8, 1879), p.x:

> DODO'S BONES.–I have some, Pelvis and
> Leg, verified by Owen, and will sell. Museum or Collector. Please
> make offer.–Charles Fox, Surgeon, Stoke Newington, N.

Charles Allen Fox (1849-1929), of Stoke Newington, was a surgeon at the London Dental hospital. In 1871 he was a student of medicine living with his parents at Lordship Terrace, Stoke Newington, Middlesex. Fox was a conservative Quaker, and by the late 1870s he had abandoned the modern society of the time and resigned from his public positions (Allen 2001). He died on 25th May 1929.

Rowland Ward's Skeleton

A skeleton of the dodo was in the possession of Rowland Ward of Piccadilly. The skeleton has indications of having been a Deyrolle specimen. Figured: Pycraft (1907, p.375). See also: National Museum of Wales (although there are differences between the above skeleton and the Cardiff one); MCZ. The MCZ skeleton shows many similarities to the above skeleton, including posture, shape of the pelvis and arrangement of ribs. However, the base of the main pole of the mount differs in shape, as does the notarium (being broken in the MCZ skeleton).[210]



One of Rowland Ward's dodo skeletons (Pycraft 1907, p.375).

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[210] Whether or not this is the same skeleton as mentioned in a letter dated 4th September 1922 from Rowland Ward to Ernest Chubb is not known (see Natural Science Museum, Durban).

The Glue Factory Dodo Skeleton Cast

The Glue Factory, Unit D1, 20 Sugarhouse Yard, London E15 2QS

Clear dodo model. Created in clear epoxy resin from moulds of Owen's dodo skeleton at the NHM (A.9040), with real dodo bones "supplied by the client" incorporated. See:

http://www.gluefactory.co.uk/modelmaker/copy_of_Clear_Dodo_Model.html [accessed 20 January 2011]

Staffordshire Skeletons

Staffordshire Skeletons, Cannock, Staffordshire

Skeleton created by Luke Williams (see also Summers Place Auctions, above), composed of casts of "genuine bones from three separate Dodos". Exhibited at Kendal Museum as part of The Great Dodo Exhibition, from 4th July to the end of October 2013.

http://www.kendalmuseum.org.uk/what's_on_130502_great_dodo_exhibition.php [accessed 11 July 2013]
http://www.skeletonsuk.com/the-great-dodo-exhibition [accessed 11 July 2013]

Deyrolle Casts of the BM Foot

Les Fils d'Émile Deyrolle, 46 rue du Bac, Paris, France

Raphus cucullatus

Deyrolle's 1911 catalogue listed: "Foot of the dodo" [Patte de dronte], available for 10 francs (Deyrolle 1911, p.152).

Deyrolle's 1929 catalogue listed: "[N°.] 264. Dodo (foot)" amongst its casts, available for purchase for 35 francs (Deyrolle 1929).

Aart Walen, "Creatures and Features"

Aart Walen, "Creatures and Features", Rijndijk 17a, NL-6686 MN Doornenburg, The Netherlands

Some years ago Aart Walen, of "Creatures and Features", purchased the rights for the moulding and casting of a dodo skeleton from the Mauritius Institute collections. The moulds are used under a limited edition licence through the Royal Museum of Scotland, Edinburgh, by Andrew Kitchener and were made at the time by preparators at the Mauritius Institute museum. Walen has created several copies of the skeleton for museums worldwide, including ZMA (now at Naturalis), Gunma Prefecture Museum and other Japanese museums (Aart Walen, pers. comm., 19th June 2012). Walen's cast is also available from Dinocasts (see below).

Jörg Ohlenbusch, Präparator

Jörg Ohlenbusch, Marquardstraße 21, 23554 Lübeck, Germany

Jörg Ohlenbusch, member of the Verband Deutscher Präparatoren, reconstructed the skeleton of the dodo (Ohlenbusch 2002-2007). Figured: Ohlenbusch (2002-2007).

http://www.pflanzenpraeparation.de/images/rekonstruktion/dronte-01.jpg

Dinosaurier-Park International

Dinosaurier-Park International, Bernd Wolter Design, Dinosaurier-Park Münchehagen Germany and Partners

Dinosaurier-Park International GmbH & Co. KG, Hannoversche Straße 23, 31547 Rehburg-Loccum, Germany

Raphus cucullatus

National Museum, Tokyo, Japan
Gunma Prefecture Museum of Natural History, Gunma [see above]

delivery of skeletons, e.g. brachiosaurus, dodo, giant deer, etc.
Reference Contact: Dr. Hasegawa, Director
http://www.dinopark-international.com/index.php/en/references

Wilhelm Schmidt's Casts

An advertisement in the *Dreizehnter über die Thätigkeit des Offenbacher Vereins für Naturkunde im Vereinsjahre vom 14. Mai 1871 bis 12. Mai 1872* (1873), p.100, reads:

Naturhistorische Gypsabgüsse,
welche von
WILHELM SCHMIDT,
Präparateur
in
OFFENBACH A. M.
Karlsstrasse No. 3.
zu beigefügten Preisen bezogen werden können,

Ferner:	fl. kr.
Didus ineptus (Dronte), getrockneter Kopf des untergegangenen Vogels . Original im Ashmole-Museum in Oxford.	1. –
Didus ineptus, getrockneter Fuss . . . . Original im brittischen Museum.	1. 12
Didus ineptus, vollständiger Schädel	4. 30

It was noted that: "Preparator W. Schmidt in Offenbach a. M. sells cheap plaster casts of the head and foot of the Dodo from the originals in the British Museum" ("B" 1869, p.229).

Cast of the Prague Beak, TOPGEO Minerallenhandel GmbH

TOPGEO Minerallenhandel GmbH, Dr. Petr Zajicek, Gersbach 10, 74589 Satteldorf, Germany
Artikel-Nr.: R338. 16cm long.
See: http://www.topgeo.de/raphus_cucullatus_didus_ineptus_syn__6266.html [accessed 1 March 2012]

Dinocasts Dodo Skeleton Replica

Dinocasts, Rua Francisco Sá Carneiro, nº6 R/c esq. Cod Postal: 2530 -108 Lourinhã, Portugal

Dodo. Dinocasts replica skeleton, mounted. Reproduction of Aart Walen's skeleton (see above). Length: 45cm, height: 50cm. Product ID: 357. See:

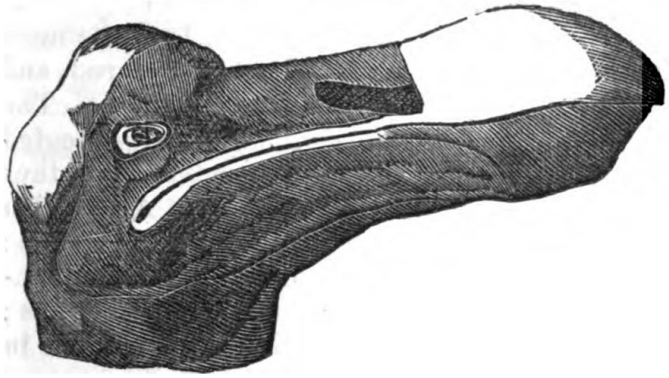
http://www.dinocasts.com/prod_productDetails.asp?ProductId=357 [accessed 13 August 2010]

Ward Casts of the Tradescant Head

Casts sold by the firm of Henry Augustus Ward of Rochester, New York.
Ward (1866) cast of the Tradescant head (No.184), "Size, 9 x 5. Price, $1.75" (figured p.48). No.185 cast of right foot "From the same locality and Museum. Size, 9 x 3. Price, $1.75." (p.49).
Ward (1870) cast of the Tradescant head (No.35 [184], "size, 9 x 5", figured p.19).
Anon. (1901, p.38) same cast (No. 56 [184], "size, 9 x 5", figured p.38). Also cast of right foot (No. 57

[185], “From the same locality and museum. Size, 9 x 3”) – despite stating that it is from the same museum as the Tradescant specimen, it must be a cast of the BM foot as it is a right foot.

63.



Cast of the Tradescant head sold by the firm of Henry Augustus Ward of Rochester, New York (Ward 1865, p.43).

There are a number of casts of the Tradescant head in private collections (Errol Fuller, pers. comm., 17th January 2008).

Skulls Unlimited International Dodo Skull Replica

Skulls Unlimited International, Inc., 10313 South Sunnylane, Oklahoma City, OK 73160, USA

Raphus cucullatus

Teaching Quality Replica of the skull and mandible of the dodo (WTQ-302). Skull length 19cm (7½ inches). See: http://www.skullsunlimited.com/record_variant.php?id=3259 [accessed 19 August 2010]

Triebold Paleontology Dodo Skeleton Cast

Triebold Paleontology, Inc., 201 S. Fairview Street, Woodland Park, Colorado 80863, USA

Cast of Rothschild’s dodo skeleton, Tring (S1988.50.1): 67cm x 30cm x 63cm (26” l x 12” w x 25” h). Triebold Paleontology possesses the moulds for this skeleton (Mike Triebold, pers. comm., 17th January 2011). See: http://www.trieboldpaleontology.com/specimens/natural-history-museum/birds-nhm/raphus-cucullatus-nhm-bird/ [accessed 11 January 2011]

Valley Anatomical Preparations, Inc.

Valley Anatomical Preparations, Inc., 45035 Trevor Ave., Lancaster, CA 93534, USA

Raphus cucullatus

AA317 mounted polyurethane skeleton cast from the Royal Ontario Museum specimen (ROM 1214). Height: 69cm (27 inches). Product was added to the catalogue on 7th August 2007.

AA317S polyurethane cast from the Royal Ontario Museum specimen (ROM 1214). 19.7cm (7 inches). Product was added to the catalogue on 7th January 2007.
see: http://www.valleyanatomical.com/catalog/product_info.php?cPath=3_139&products_id=899&osCsid=hb9kq1khc361v5ve1kk5n2cu07 [accessed 2 July 2009]
http://www.valleyanatomical.com/catalog/product_info.php?cPath=3_139&products_id=935&osCsid=hb9kq1khc361v5ve1kk5n2cu07 [accessed 2 July 2009]

Valley Anatomical Preparations dodo skeleton (AA317) (© Chris Freeland, 25th May 2011).

Cast of the Tradescant Head

Coloured cast of the Tradescant head, sold by online auction on eBay UK, 1st September 2012. See: http://images.cloud.worthpoint.com/wpimages/images/images1/360/0112/09/360_90f3900db29acc2988922b89999f7731.jpg [accessed 3 July 2012]

Other Specimens

Raphus cucullatus

Mare Sèche

Raphus cervical vertebra found in a core-hole (CWA/GWR/315), Mare Sèche, by David Ball in June 1973. Analysis of the core showed that the bones were from the top 3m. See Parish (2013, pp.254, 364-365). Diamond Drillhole record for core-hole CWA/GWR/315 (courtesy of Wahab Owadally, pers. comm., 13th March 2008):

Diamond Drillhole Record

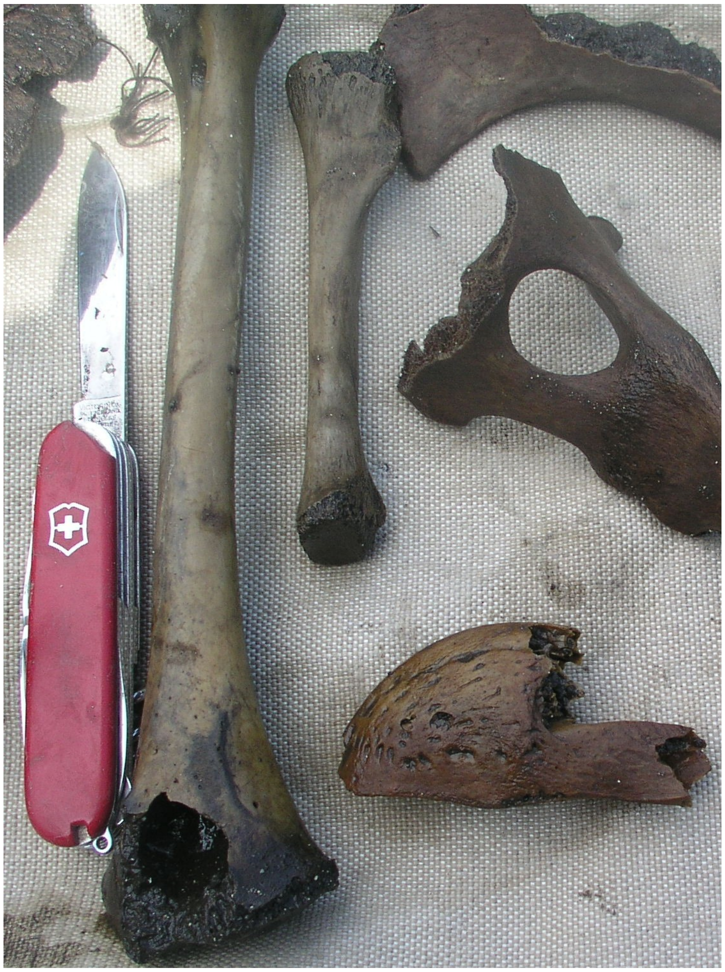
Hole No 315	Location Mare Seche	Co. Ords. N	Inclination	El. Col
Date started ~~Ju~~	Finished June 1973	E	Azimuth	Depth

	LOG			Description
	From	To	Core	
	0	10		Greyish green clay becoming dark brown between 8-10 ft

10	15		Flow. Bl. gy. med. gr. clinkery 10-13
15	47		Flow as above. v. ves. broken 15-22 rest fresh compact
47	54		Flow as above - ves. clinkery - clinkers filled with clay
54	57		Tuff with boulders
57	73		Flow as above. ves. clinkery throughout
73	125		Flow as above. v. ves. 73-80. 80-95 fresh compact - fissured with clay in fissures - same for 116-120
125	139		Flow. Bl. gy. med. to fine gr. ves. broken throughout
139	150		Old Lagoon - coral with sedimentary deposits
150	155		Sedimentary deposits
155	164		Weathered lava
164	180		Tuff ? poor recovery
180	220		Flow. Bl. gy. med. gr. 180-200 weathered (v. poor recovery) 200-220 compact fresh (poor recovery)

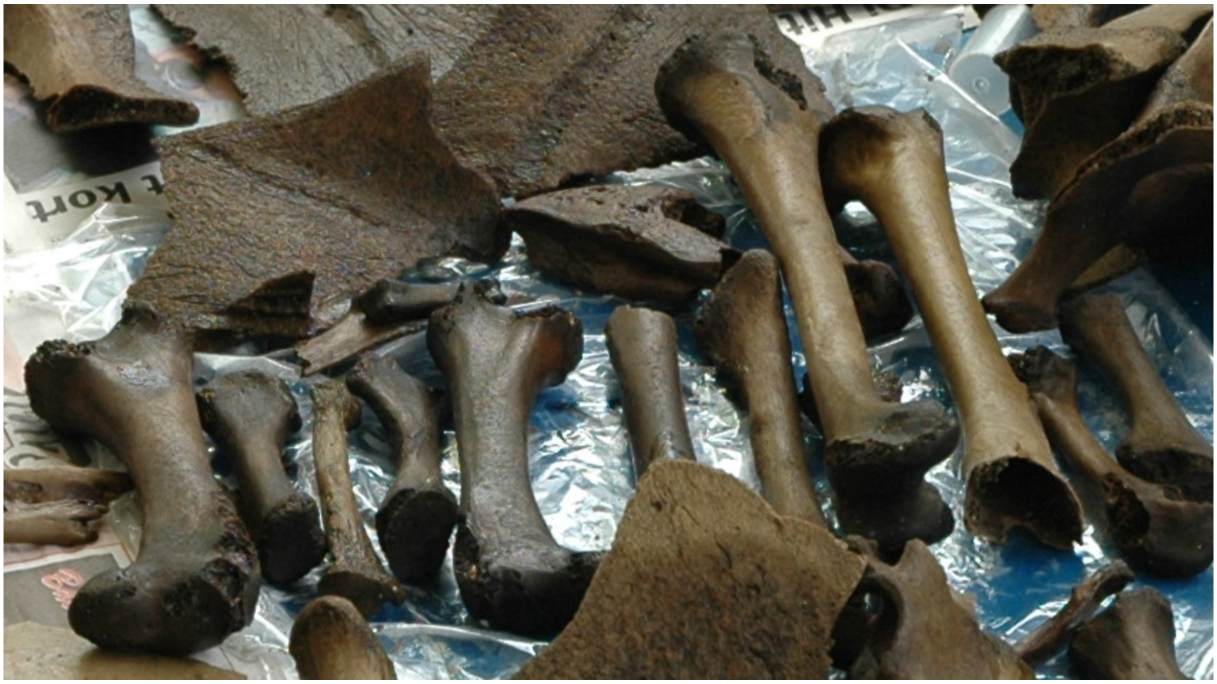
2005-2010 Mare aux Songes Excavations

The bones found included skull elements, a mandible in three parts, scapulocoracoid (lacking scapula), sternal fragments, pelvis fragments and pedal unguals. See Parish (2013, pp.259-261, 357, 358, table 5.1) for details.



Dodo bones found at Mare aux Songes in 2005, including a rostrum (MAS 2005-11) (© Peter Floore).

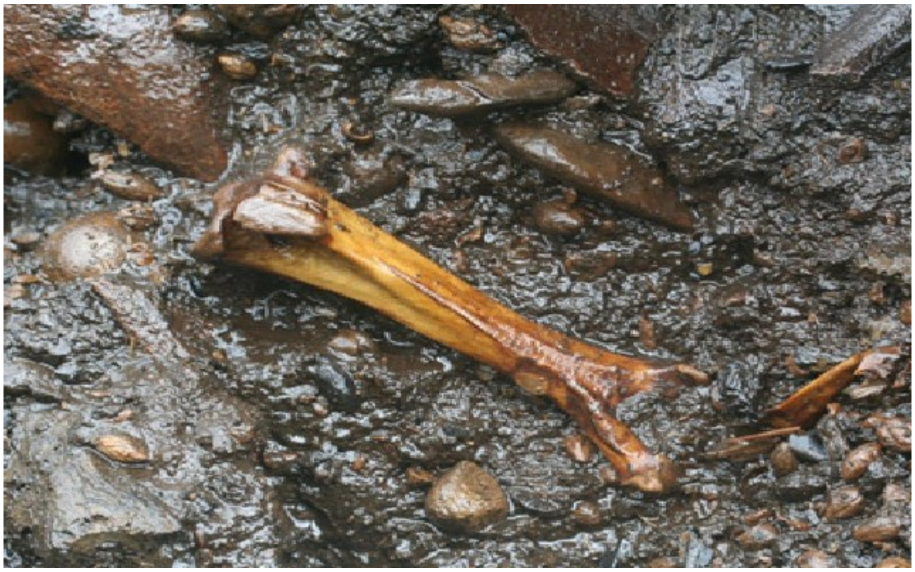
2005 (fourteen bones in total):
distal premaxilla (rostrum) (MAS 2005-11)
ribs (Groëme 2005)
right scapula (MAS 2005-9)
left humerus (MAS 2005-7)
fragmentary carpometacarpus (MAS 2005-10)
left femur (MAS 2005-6)
left femur (MAS 2005 / 395) (damage to proximal extremity, lacks distal end). Figured: Meijer *et al*. (2012, fig.6).
left tibiotarsus (damaged proximally)
?left tibiotarsus (lacking proximal end)
plus two fused cervical vertebrae (found by Julian Hume amongst the 2005 material)



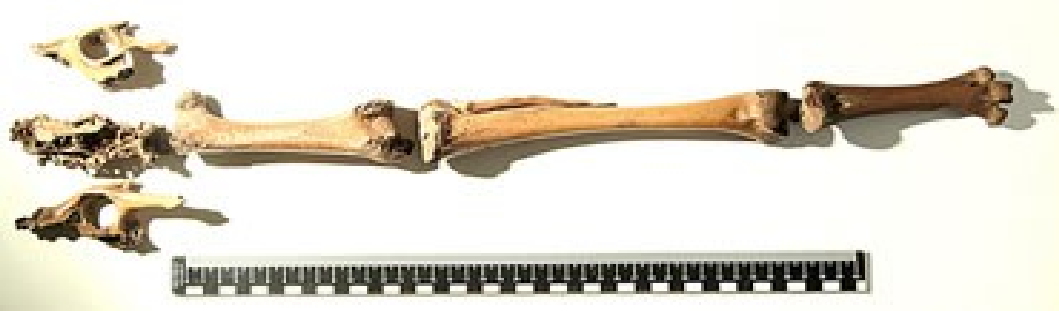
Dodo bones found at Mare aux Songes in 2005 (© Peter Floore, 2005).

2006:
symphysis and distal end of left mandibular ramus (MAS 2006-64-7)
AG 83 mid-cervical vertebra (MAS 2006 1140). Figured: Meijer *et al*. (2012, fig.4b).
AG 94 sternum (MAS 2006-1077). Figured: Meijer *et al*. (2012, fig.4a).
AG 57 left scapula (MAS 2006-189) (distal extremity broken off but present. Figured: Meijer *et al*. (2012, fig.4c).
'leg' (left and right acetabular regions, damaged synsacrum, right femur, tibiotarsus, and fibula). See Parish (2013, p.380n86). Figured: Van Aarsen (2006a), Stoelinga (2008).
AG 125 right femur (MAS 2006 1042) (slight damage to extremities). Figured: Meijer *et al*. (2012, fig.5b).
AG 480 right tarsometatarsus (MAS 2006 951). Figured: Meijer *et al*. (2012, fig.5d).
left tarsometatarsus
pedal phalanx (MAS 2006-61-6)
[Dodo bones on loan from the Mon Trésor et Mon Désert collection]

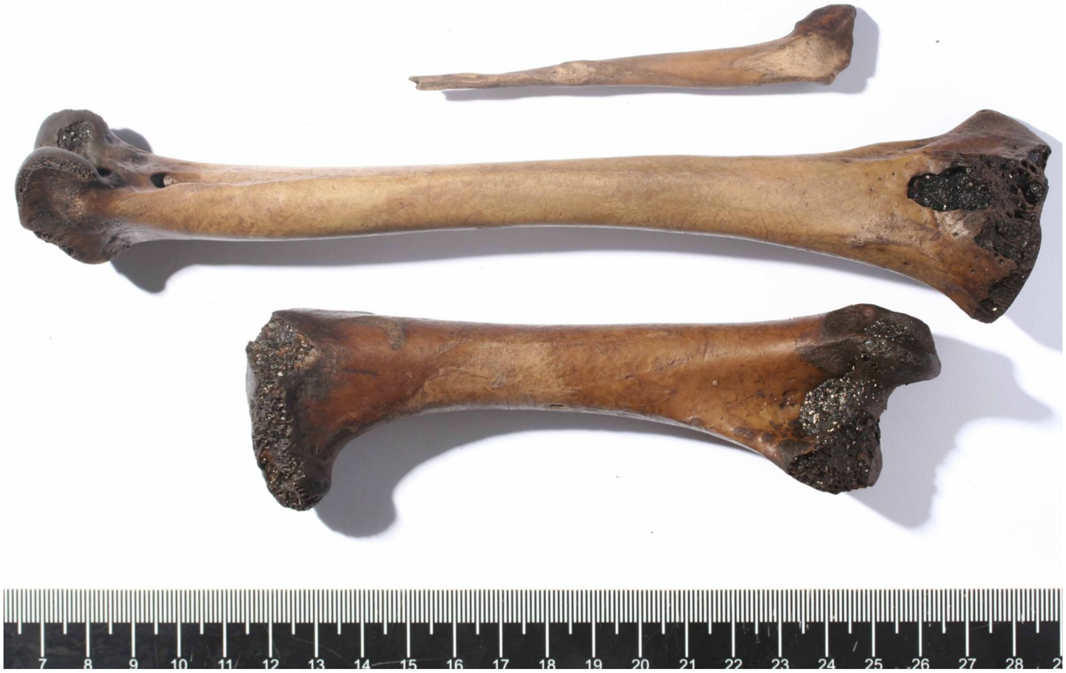
Julian Hume with mandible fragment, 2006 (© Ranjith Jayasena).



Right dodo tarsometatarsus in Layer D, Scoop 2006-TR1A. The matrix comprises peat, palm piths and seeds of *Pandanus vandermeeshii* and *Sideroxylon grandiflorum* (© Ranjith Jayasena).



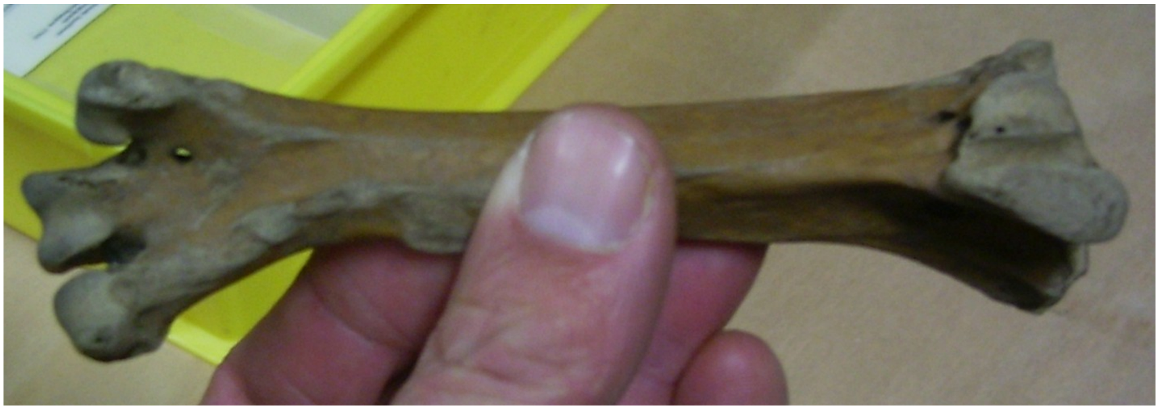
Dodo ‘leg’ (left and right acetabular regions, damaged synsacrum, right femur, tibiotarsus, and fibula, left tarsometatarsus), 2006 (© Ranjith Jayasena).



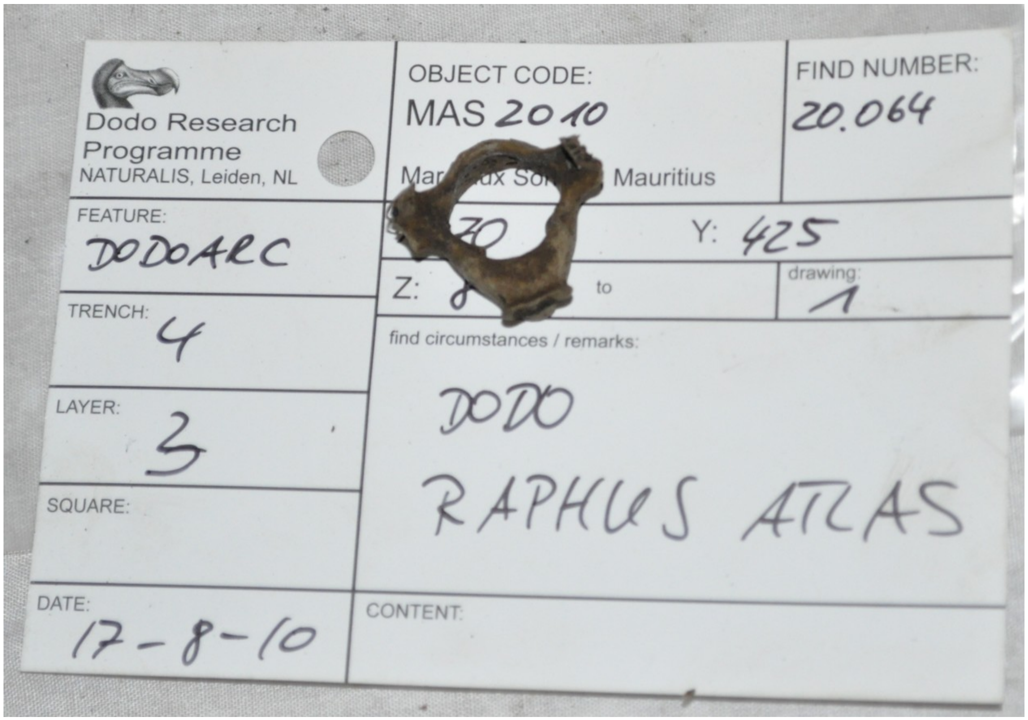
Dodo hindlimb bones: right femur, tibiotarsus and fibula, 2006 (© Ranjith Jayasena).

2007:
left tarsometatarsus (see figure below).

AG 112 left humerus (damaged proximomedially and damage to deltopectoral crest). Figured: Meijer *et al*. (2012, fig.4d).
AG 16 left radius. Figured: Meijer *et al*. (2012, fig.4e).
AG 62 left carpometacarpus. Figured: Meijer *et al*. (2012, fig.4f).
AG 128-130 left and right acetabular regions. Figured: Meijer *et al*. (2012, fig.5a).
MAS-AG 171-173, 184-189 and 183-196-472: three pelvic appendage bone constellations (Meijer *et al*. 2012).
AG 100 right tibiotarsus (1082). Figured: Meijer *et al*. (2012, fig.5c).
AG 39-40 pedal phalanges. Figured: Meijer *et al*. (2012, fig.5e).
MAS 2010 20.064 atlas. Trench 4, layer 3. 17th August 2010.



Left dodo tarsometatarsus (© Pim van Tend, 13th December 2007).



Dodo Research Programme
NATURALIS, Leiden, NL

OBJECT CODE:
MAS 2010
Mar ux So Mauritius

FIND NUMBER:
20.064

FEATURE:
DODOARC

30 Y: 425

Z: 8 to

drawing:
1

TRENCH:
4

find circumstances / remarks:
DODO
RAPHUS ATLAS

LAYER:
3

SQUARE:

DATE:
17-8-10

CONTENT:

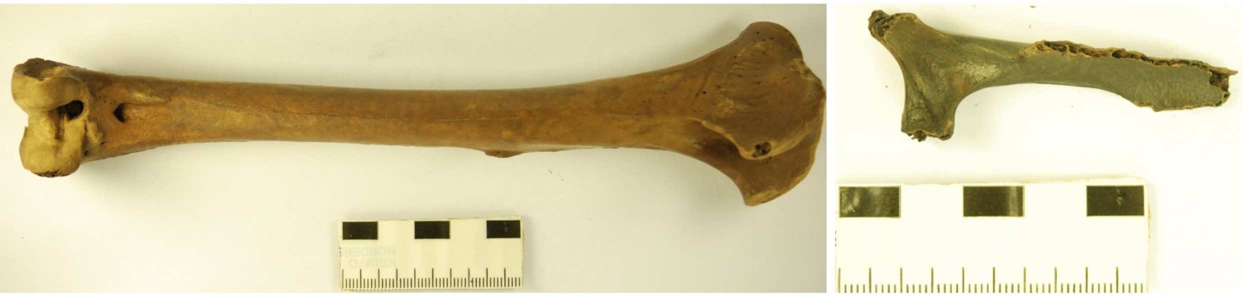
Dodo atlas (MAS 2010 20.064) (© Naturalis, 18th August 2010).

Left dodo femur (© Naturalis, 15th August 2010).

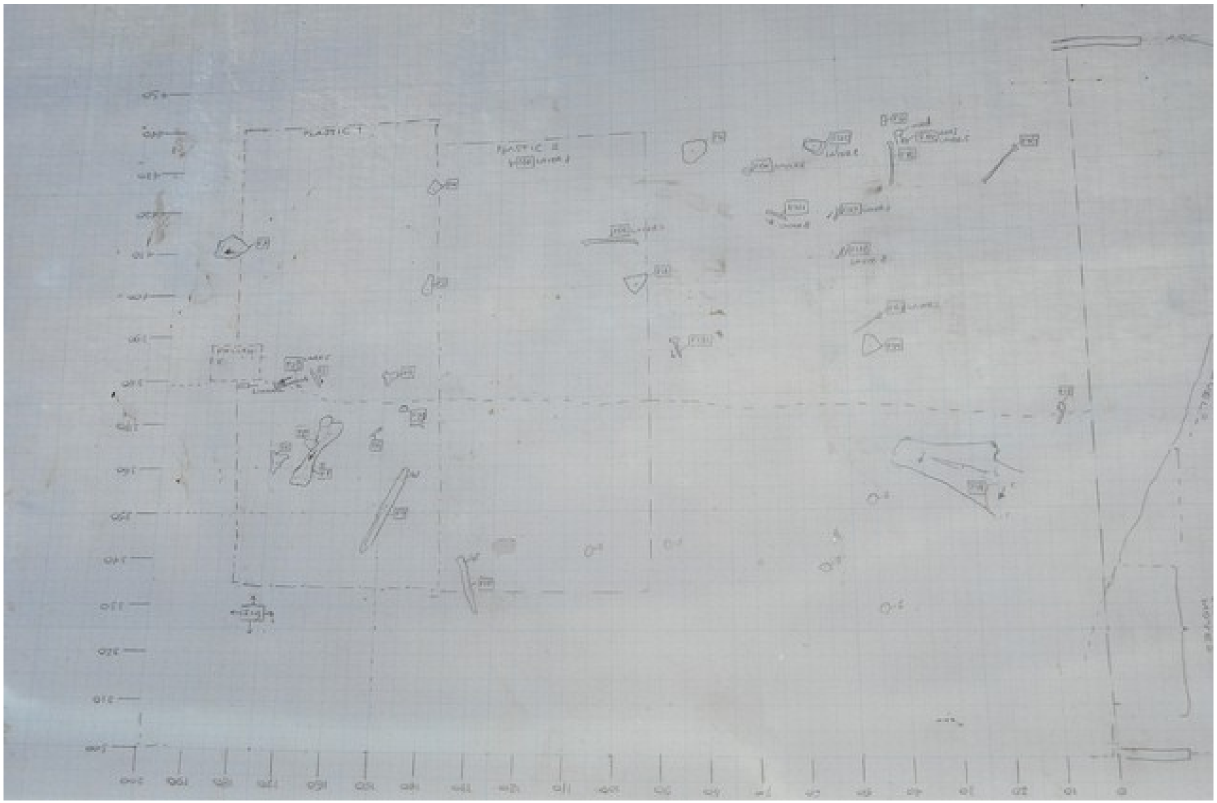
Proximal end of right dodo tibiotarsus (© Naturalis, 18th August 2010).

Other figures of Mare aux Songes bones include:

Davies (2005, p.23) [many bones on table]
Roth (2006, p.26) [femur, tibiotarsus]
Toebosch (2006, p.72) [bones on table] (reproduced in: Van Aarsen 2006b)
Thomas (2006, p.22) [right femur, right tibiotarsus, right fibula]
Van Raaij (2006) [right femur, right tibiotarsus, right fibula]
Kleeman (2007, p.60) [beak, right scapula, two humeri, fragmentary carpometacarpus, four femora, two tibiotarsi, shaft of tibiotarsus, two pedal phalanges]
Hume (2009b, p.29) [bones in a tray]
Rijsdijk *et al*. (2011, fig.4c) [pelvis in layer D]
Meijer *et al*. (2012, fig.2) [right tarsometatarsus in layer D, subbasin I] (reproduced in: Hume 2012a, fig.9; Hume 2013, fig.5b)
Parish (2013, fig.5.55) [tibiotarsus].
Hume *et al*. (2014a, fig.6a) [five tibiotarsi (one left lacking proximal end and part of diaphysis, one lacking distal end, one left lacking proximal extremity, one right, one lacking proximal end and damaged distally)]



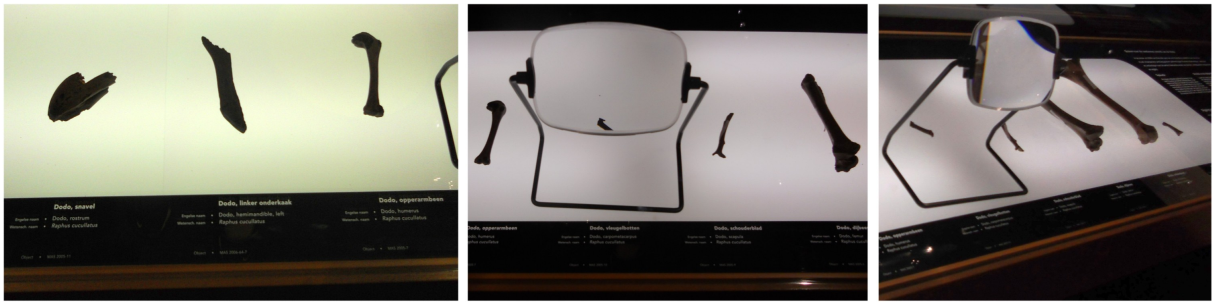
Dodo tibiotarsus and pelvis fragment (© Naturalis, 2009).



Plan of part of the excavation, drawn by Jan Vernimmen, 2010 (© Naturalis, 18th August 2010).

The newspaper article “Puzzelen met duizenden jaren oude dodo” includes a photograph of Lars van den Hoek Ostende with bones of the dodo laid out on Owen’s skeleton reconstruction (Owen 1867, pl.xv). [Photograph: ANP/Koen Suyk] [rostrum, symphysis plus distal portion of mandibular ramus, synsacrum, scapula, carpometacarpus, femur, tibiotarsus, tarsometatarsus, pedal phalanx 1 of digit III].

An exhibition of specimens from the 2005-2006 Mare aux Songes excavations was held at Naturalis, Leiden, from December 2005 to January 2006 (see National Museum of Natural History, Leiden).



Mare aux Songes dodo bones on display at Naturalis (© Bianca Bueno, 26th September 2010).

Dodo Bone Fragments from Limestone Caves

Two limestone cave systems containing fossil bone fragments, including dodo, within the sediment have been found. It is hoped that DNA analysis can be undertaken on these at the Ancient DNA laboratory at the NHM.

The caves are privately owned and are located in southwest and southeast Mauritius (Julian Hume, pers. comm., 8th November 2010).

According to Julian Hume (pers. comm., 11th November 2010): “The caves have silt-sand sediment intermixed with cave wall/roof boulder debris, ranging in size from 2mm - 200mm. Almost all of the subfossil material is found on the surface down to 200mm. Below that level, the subfossil material is heavily eroded and fragile. There are a few deep pockets where the scree, which is up to 1000mm deep, has subfossil remains throughout”.

Source: The Gen Foundation. Dr. Julian Hume. Research Associate, The Natural History Museum, London. Project: Fossil excavation in Mauritian caves to obtain dodo DNA:
www.genfoundation.org.uk/hume.html [accessed 21 October 2010]

Fossiliferous cave deposits were discovered by Julian Hume and colleagues at Vieux Grand Port and La Prairie (Hume 2013).

Vieux Grand Port

Locality: small dry caves in a calcarenite outcrop near Vieux Grand Port (Hume 2011).

Sedimentology: the sediments of cave VGP1 comprise carbonate silt to coarse gravel (>20mm) and boulder scree (<250mm). The silts fine upwards and are up to 300mm thick. Subfossils are well preserved and were found at up to 100mm depth.

Associated fauna: *Cylindraspis* spp., *Pteropus subniger*, *Aphanapteryx*, *Nesoenas cicur* and other endemic birds (Hume 2011, 2013).

Some of the caves were used by the Dutch and contain remains of animal corrals (Hume 2013).

La Prairie

Locality: limestone plain containing several caves, some permanently water-filled (Hume 2013).

Sedimentology: silts with dispersed cave collapse debris, up to 500mm deep. Rocky cave scree (Hume 2011, 2013).

Associated fauna: reptiles, *Puffinus pacificus* and other endemic birds, *Pteropus* (Hume 2013).
Significance: bone fragment of juvenile dodo found (Hume 2013).

Other Localities

In 1999 the French palaeontologist Didier Dutheil excavated the posterior portion of a dodo skull from a site in north Mauritius (Nicholls 2006). See Parish (2013, pp.255, 365) for details.

Plaine des Roches
(See Parish 2013, p.362).
Stratigraphy: cave sediments usually shallow or absent, and mostly covered with cave collapse debris (Hume 2013).

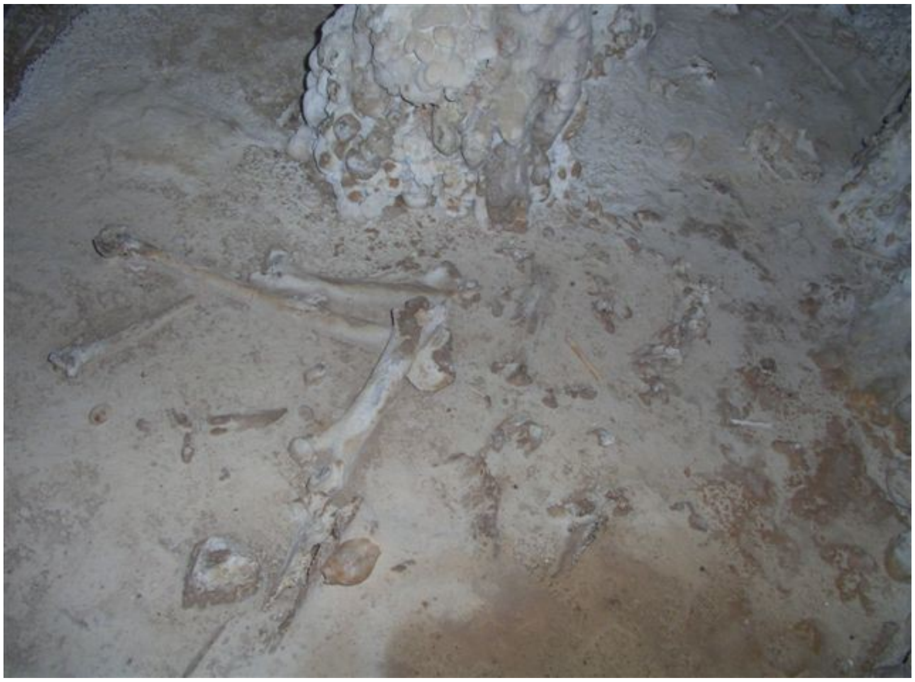
Vallée des Prêtres
(See Parish 2013, p.364).
Although there are no caves or large overhangs in Vallée des Prêtres there is much boulder scree (Hume 2013). Hume (2013) noted that some specimens have Vallée des Prêtres locality data recorded on museum labels, but the specimens themselves were collected from Mare aux Songes.

Roches Noires
Associated fauna: *Alectroenas nitidissima* (Hume 2013).

Solitaire Remains

See also above (The François Leguat Giant Tortoise and Cave Reserve Museum). A fragment of proximal humerus from cave deposits identified as solitaire has been re-identified by Julian Hume as belonging to *Papasula abbotti* (Hume 2013).

Caverne Poule Rouge (PCV20)
Preservation: good; tortoise scutes preserved.
Sedimentology: sediments 850mm (middle of the cave) to <10mm (cave extremities) deep.



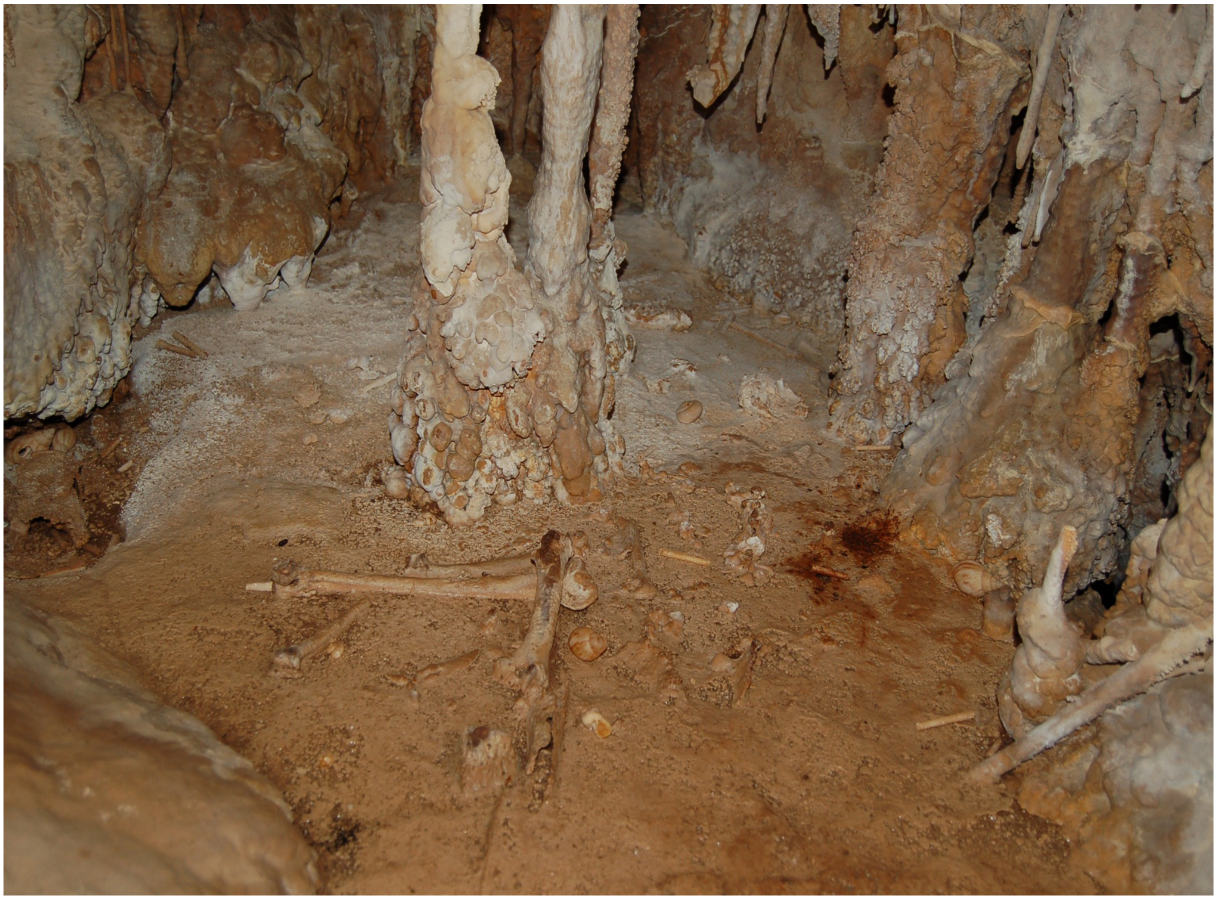
Partly articulated solitaire skeleton discovered by Julian Hume (© Julian P. Hume).

Most of specimens discovered on surface or within the top part of the sediments.

Associated fauna: tortoise, *Alectroenas payandeei*, Rodrigues rail, night heron (Hume 2013, Hume *et al*. 2014b).

See also above (Grande Montagne Visitor and Information Centre).

Complete associated and partly articulated male solitaire skeleton found by Julian Hume in 2005 in a small chamber at the furthest point from the entrance to the cave (Hume *et al*. 2014b. See Parish 2013, p.256). The cranium, rostrum and sternum are disarticulated and are a little distance from the rest of the skeleton (Hume *et al*. 2014b). Figured (*in situ*): Grihault (2007, p.50), Middleton (2008, photo 8); Hume (2013, fig.12); Parish (2013, fig.5.52), Hume *et al*. (2014b, fig.23 [photograph, scaled diagram of the skeleton by Julian Pender Hume and Lorna Steel, reconstruction of the individual in death position by Julian Pender Hume]).



Partly articulated solitaire skeleton discovered by Julian Hume (© Greg Middleton, 19th October 2005).

Caverne L'Affouche

Large cave with much roof collapse debris.

Bones found between boulders and overhangs.

Associated fauna: passerine and other endemic birds (Hume 2013).

See also Parish (2013, pp.256, 257-258, 381n39) and above (The Natural History Museum, London).

Caverne Gastonia

Pitfall cave.

Most loose bones found on surface or at a depth of < 200 mm beneath the entrance. Some specimens found partly buried in flowstone (Hume 2013).

See also Parish (2013, p.368).

Caverne Tortue

Sedimentology: deep sediments slumped away from the cave entrance, other areas containing sediments generally <100mm deep, although deeper in some places.

Associated fauna: disarticulated bones of endemic birds found in slumped sediments (Hume 2013).

Caverne Dora

Locality: at southern end of Canyon Tiyel.

Associated fauna: reptiles and endemic birds including *Mascarenotus murivorus* and herons found near the entrance.

Age: a ^{14}C date of 2850 ± 30 BP (calibrated: 3060-2870 BP) was obtained from a *Mascarenotus* specimen from a depth of 65-75mm in the cave (Burney *et al*. in prep., *ex* Hume 2013).

Caverne Solitaire

Sedimentology: approx. 300mm thick layer comprising coarse, angular cave debris (>50mm) and wood fragments in a reddish silt/clay matrix, under an overhang. This may represent a flash flood deposit.

Associated fauna: birds, including *Puffinus* sp. (Hume 2013).

Caverne Bambara I

Cave open at both ends. Previously used for domestic animals (Hume 2013).

Caverne Bambara II

Sediments up to 300mm deep.

Associated fauna: *Nesoenas rodericana* (Hume 2013).

The Bambara series of caves are 40, 70, 80 and 106m long and are at least in part stream caves (Middleton & Burney 2013). See also Parish (2013, pp.257, 381n39).

Grande Caverne

490m long. A stream cave, at least in part (Middleton & Burney 2013). Formerly used for domestic animals.

The sediments are poor in subfossil remains, especially at depth; this could be due to periodic flooding causing compaction of sediments (Hume *et al*. 2014b). Middleton & Burney (2013), however, stated that the cave was "a major source of fossil bones of giant tortoises and Solitaires" (p.269).

See also Parish (2013, pp.257, 380n84, fig.6.38).

Anse Mourouk

Coastal dune site.

Complete femur found in sand dunes by Julian Hume and colleagues in 2007 during the excavation of a whale skeleton. The first remains of *Pezophaps* found outside Plaine Corail (Hume 2013; Julian Pender Hume, pers. comm., 2012, *ex* Middleton & Burney 2013).

Other Dodo Specimens

Dodo skeleton cast: Gill & West (2001)

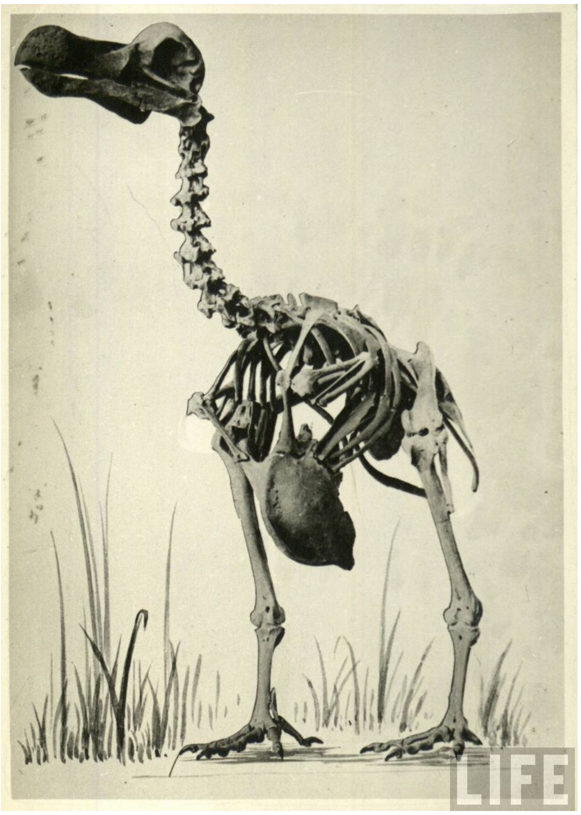
Figured: Gill & West (2001, pp.64, 96).

Cast of the Copenhagen Skull

Lüttschwager (1960, figs.24-26) figured a cast of the Copenhagen skull, although no location was given.

Washington, D.C.

Washington, D.C. fake dodo skeleton. A poor model of a dodo skeleton.



Dodo skeleton of unknown origin (*LIFE* magazine).

Misidentified Specimens

Museum of the Asiatic Society of Bengal
Fossils from Mauritius from "Mountain Dujardin", mentioned in "Asiatic Researches Vol.XVIII in appended list of Presentations". "These bones were in a shelf labelled bones of the Dodo from the Mauritius, but they are entirely of Testudo; and there are only a few modern? bird bones among them, and these not referable to the Dodo" (Falconer & Walker 1859, p.261).

Boudewijn Büch's Collection
A small 'dodo' bone, alleged to be a femur found on Mauritius in 1865, kept in a box with a glass lid. It was presented to Boudewijn Büch on a visit to Mauritius in 1991,[211] during one of Büch's broadcasts, by the director of the Mauritius Institute (Hogeweg 2004). However, this is actually a chelonian bone, as was determined during an exhibition at the Natuurmuseum in Rotterdam (BüchMania InfoBulletin, Jrg 7, no.6, 15th February 2005: http://www.boudewijnbuch.info/diginb/BMIB-05-02-15.htm [accessed 24 January 2013]; Naturalis 2006).

Relative Abundance of Elements

The following charts show the relative abundance of dodo bone elements, based on collections catalogued by the author.

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[211] Boudewijn Büch (1948-2002). Dutch writer, collector and television presenter. Hogeweg (2004) states that Büch visited Mauritius in December 1991, but later in the article remarks that he was at the Mauritius Institute in February of that year. Other sources also state that he was on Mauritius in February 1991.

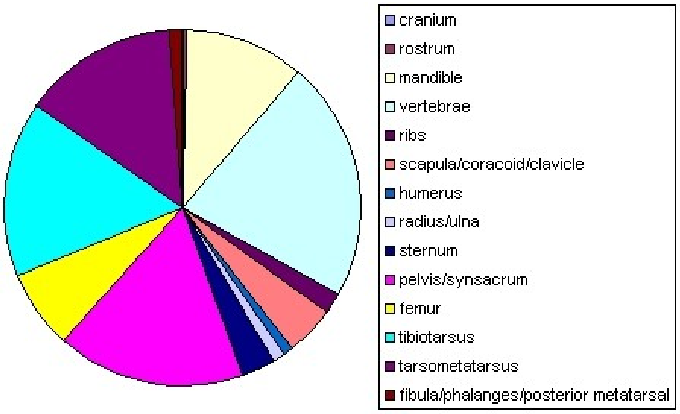

Chart showing relative element abundance, based on Mare aux Songes material from NHM, OUM, UMZC, Booth Museum, AMNH, YPM, USNM, Ralfe Whistler's Collection (n = 1178).

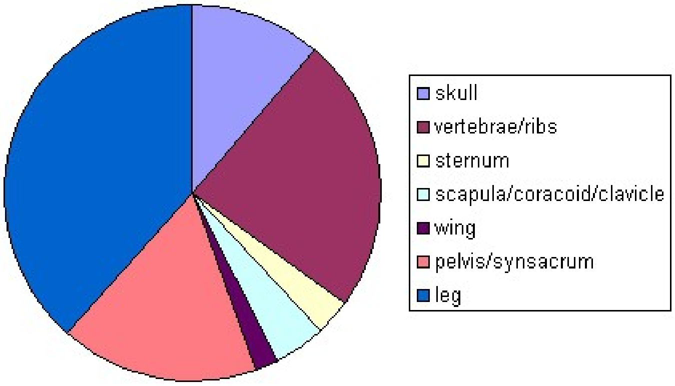

Chart showing relative element abundance, based on Mare aux Songes material from NHM, OUM, UMZC, Booth Museum, AMNH, YPM, USNM, Ralfe Whistler's Collection (n = 1178).

Acknowledgements

This work would not have been nearly as comprehensive if it were not for the generous assistance provided by curators and others. In particular I would like to thank: Sandra Chapman (NHM), Ann Charlton (UMZC), John A. Cooper (Booth Museum), James Dean (USNM), Belinda Eisenhauer (formerly at the Durban Natural Science Museum Library), Mark S. Florence (USNM), Adrian Friday (UMZC), David Gonzalez, Owen Griffiths (The François Leguat Giant Tortoise and Cave Reserve Museum), Lumka Ludwaba (Librarian, Durban Natural Science Museum), Malgosia Nowak-Kemp (OUM), Paul Sweet (AMNH), Kate Santry (Archivist and Assistant Librarian, OUM), Ray Symonds (UMZC), Ralfe Whistler, and Kristof Zyskowski (YPM).

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